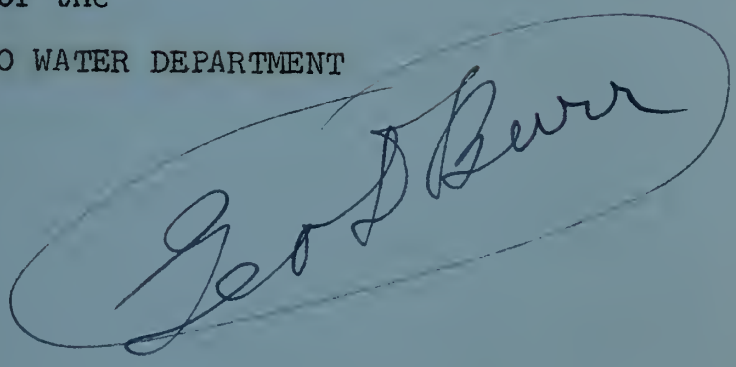
REPORT

of the

SAN FRANCISCO WATER DEPARTMENT



FISCAL YEAR
1954-1955

G. W. PRACY
General Manager and Chief Engineer

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CRYSTAL SPRINGS 44-INCH REPLACEMENT

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SAN FRANCISCO WATER DEPARTMENT

G. W. PRACY

General Manager and Chief Engineer

"At noon of March 3, 1930, the City and County of San Francisco formally acquired title to the operative properties and other assets of the Spring Valley Water Company and the newly created "San Francisco Water Department took over the operation and management of the system, which as a privately-owned utility, up to that time, had furnished practically the entire domestic water supply for San Francisco since 1858."

This was the first paragraph of the 1930-31 report of the one year old Department, which is now twenty five years old. A comparison of the Department then and now, a quarter of a century later, is shown below.

P H Y S I C A L P L A N T

	1930	1955
Land		
Acres	62,611.	63,185.
Impounding Reservoirs		
Number	4.	4.
Capacity in billion gallons	62.3	61.3*
Distributing Reservoirs		
Number	8.	13.
Capacity in Million gallons	134.6	360.4
Transmission mains in miles	111.	221.4
Tunnels and flumes in miles	24.	22.
Distributing pipe lines in miles	870.	1,086.
Service connections	111,000.	153,686.

*Weir in Calaveras Spillway removed reducing the capacity by 1. billion gallons.

C O N S U M P T I O N

Water deliveries at Consumers Meters	1930-31	1954-55	% of increase
Suburban			
Total in million cubic feet	162.9	2,059.3	1,164.1
Average in million gallons per day	3.3	42.2	-
San Francisco			
Total in million cubic feet	1,983.2	3,616.3	82.3
Average in million gallons per day	40.6	74.1	-

R E V E N U E

Revenue accounts - amount received	$6,630,389.	$12,683,905.	91.3
Municipal- Non-paying accounts	358,387.	739,565.	106.4
Totals	$6,988,776.	$13,423,470.	92.1

There have been only three bond issues approved for the Water Department the total amount of which was $65,595,000. Of this amount there was $24,902,201 outstanding on July 1, 1955. The first issue was authorized for the purchase of the property of Spring Valley Water Company, maturity date for the last of these bonds is 1970. The second issue was for distribution facilities and was retired in 1954.

The third was for the purpose of bringing Hetch Hetchy water to the consumers. This issue was called the Hetch Hetchy 1947 Bonds. The Water Department participated in the 1947 Bond Monies to the extent of $12,500,000. On this amount there was $9,902,201 outstanding on July 1, 1955. Maturity date for the last of these bonds is 1969. All interest and principal payments have been paid from Water Department revenue.

E X P E N D I T U R E S

Totals for 25 years

Redemption of Water Department Bonds		$ 40,942,799
Interest on Water Department Bonds		37,385,577
Operating Expenses		132,389,490
Non-operating Expenses		1,115,637
Contributed to Hetch Hetchy		23,613,864
Taxes - Actual		8,565,151
Value of Plant taken over - March 3, 1930	$42,902,614	
Additions to Capital in Service - Net	55,216,698	98,119,312

C A P I T A L I N V E S T M E N T

Totals for 25 years

Additions from revenue	$ 24,389,663
Additions from bond funds	66,326,925
Additions from U.S. Gov't funds	2,358,988
" " other funds	7,558,670
Total capital investment	$100,634,246

Depreciated and/or written off	$32,577,728
Present value of plant	$65,541,584

The average amounts collected per hundred cubic feet of water during the 1954-55 fiscal year were 27.37¢ in San Francisco and 17.12¢ in the Suburban area. In 1930, the averages were 33.10¢ and 17.84¢ per hundred cubic feet respectively. The 1930 Suburban average, after eliminating contract and free water for comparison with the present average, was 23.26¢ per hundred cubic feet. The decreases of 17% in San Francisco and 26% in the Suburban area reflect the lower rates for water service plus the fact we now have four steps in the rate schedule compared with only three steps in 1930.

This reduction has taken place during a period of rising costs. For instance, construction is approximately 3 times the 1930 cost; rates of pay to employees are between 2 and 3 times what they were then.

Employment by the Department in 1930 was 499 persons and at the end of 1954-55 fiscal year we had 472 regular employees and 65 temporary employees. (537 total)

This growth in the Department's business is increasing at a very rapid rate with the result that additional facilities must be provided at the same rate. It is always a close race between increasing demand and provision of the facilities to insure an adequate supply to meet it. This requires a continuing program, carefully planned and timed to meet this ever increasing demand for more water. There is no question but what a substantial part of the future cost will have to come from revenue bond issues in order to provide the necessary water in time.

Progress on the Sunset Pipeline is on schedule. Contract for the 90-inch Hillsborough Tunnel will soon be awarded. This construction will take from one and one half to two years to complete. The balance of the pipeline is scheduled for completion at the time the tunnel is ready for service. The San Andreas Branch of the Sunset Pipeline is under construction and should be completed about September 15, 1955. That part of the completed Sunset Pipeline has been in operation and the San Andreas branch will be put in operation upon its completion.

Balboa Reservoir site is not available for construction in 1954-55 so a change in plans was necessary. Construction of a new Corporation Yard and earthwork for the south basin of Sunset Reservoir were moved up to 1955-56 fiscal year.

Summit Reservoir construction was completed during this year.

The insurable buildings of the Department being used in operation and maintenance were covered with blanket fire and extended coverage insurance this year for the first time since the City took over the property from Spring Valley Water Company.

During the year, the Commercial offices were remodeled and rearranged. The vault on the second floor of the Mason Street Building, which was no longer required, was removed, which added about 25% additional working space on that floor. The Collection Division, with the exception of the receiving tellers, was moved from the first to the second floor. The Water Sales general offices and the Claims Division were moved to the front of the building on the first floor and allowed the Service Division, which had become badly overcrowded, to expand. Adequate, modern, slim line lighting was installed in the ceiling of this first floor. This has been a model for other concerns who contemplate modernization of their own offices. Immediately following the lighting installation, the first and second floor interiors were painted so that the general overall appearance of the Commercial offices was greatly enhanced.

On June 1, 1955 the 85 year old College Hill 30-inch pipeline, branch of the San Andreas 44-inch pipeline, was taken out of service between Twelve Mile House and San Francisco. College Hill reservoir is now being supplied by the San Andreas and Crosstown pipe lines.

The annual report of this year follows the same general outline of previous years in order to give continuity of record and to provide ready reference comparison of operating results from year to year. Following this foreword, a more detailed description is provided of the Department's operations during the year ending June 30, 1955, which in turn is followed with an appendix and a list or Organization and Personnel.

For the third year rainfall was below normal in the Department's local Watershed Areas and for the second year rainfall was below normal within the City. This reduced rainfall was reflected in a reduction in storage of 912 million gallons in City and Peninsula reservoirs and 231 million gallons in Calaveras Reservoir during the fiscal year. This decrease occurred even though the maximum quantity possible was drawn from Hetch Hetchy during the year, averaging 109.5 million gallons daily.

Water consumption for the entire system during the year ending June 30, 1955 averaged 135.7 million gallons daily, an increase of 10.8 million gallons, or 8.6% daily over the preceding year. Of this total, 91.1 million gallons daily were used in the San Francisco consumption area, an increase of 1.4 million gallons per day or 1.5% and the balance of 44.6 million gallons daily was used in the suburban consumption areas, an increase of 9.4 million gallons or 26.7% per day.

The peak 24 hour demand on the system, occurring on July 28, 1954 was 190.0 million gallons, as compared to the previous all time peak of 197.0 million gallons on June 21, 1954.

The low 24 hour demand on the system, occurring on December 11, 1954, was 92.5 million gallons as compared to the 1953-54 low of 88.0 million gallons on November 22, 1953.

The month of June 1955, had the highest daily average demand of any month during the year averaging 166.5 million gallons per day as compared to an average of 157.3 million gallons per day in June 1954.

Water sales for the year, including municipal non-pay accounts, amounted to $13,423,470, an increase of $605,525, or 4.7 per cent over the previous year. Accounts within the city limits increased by $111,781, making a total net sales within the City of $9,898,485, or 73.7 per cent of the Department's total sales. Suburban net sales increased $493,744, making a total suburban sales of $3,524,985, or 26.3 per cent of the Department's net sales.

The number of active accounts increased from 150,892 on June 30, 1954 to 151,598 on June 30, 1955, a gain of 0.7% over the year.

Accounts determined to be uncollectible totaled $8,637, an increase of $2,989 over the preceding year.

On June 30, 1955 the total number of water meters in service was 155,782, an increase of 533 during the year. (Metering of the entire system was completed in 1918).

Personnel employment amounted to a total of 537 on June 30, 1955, including 65 temporary employments.

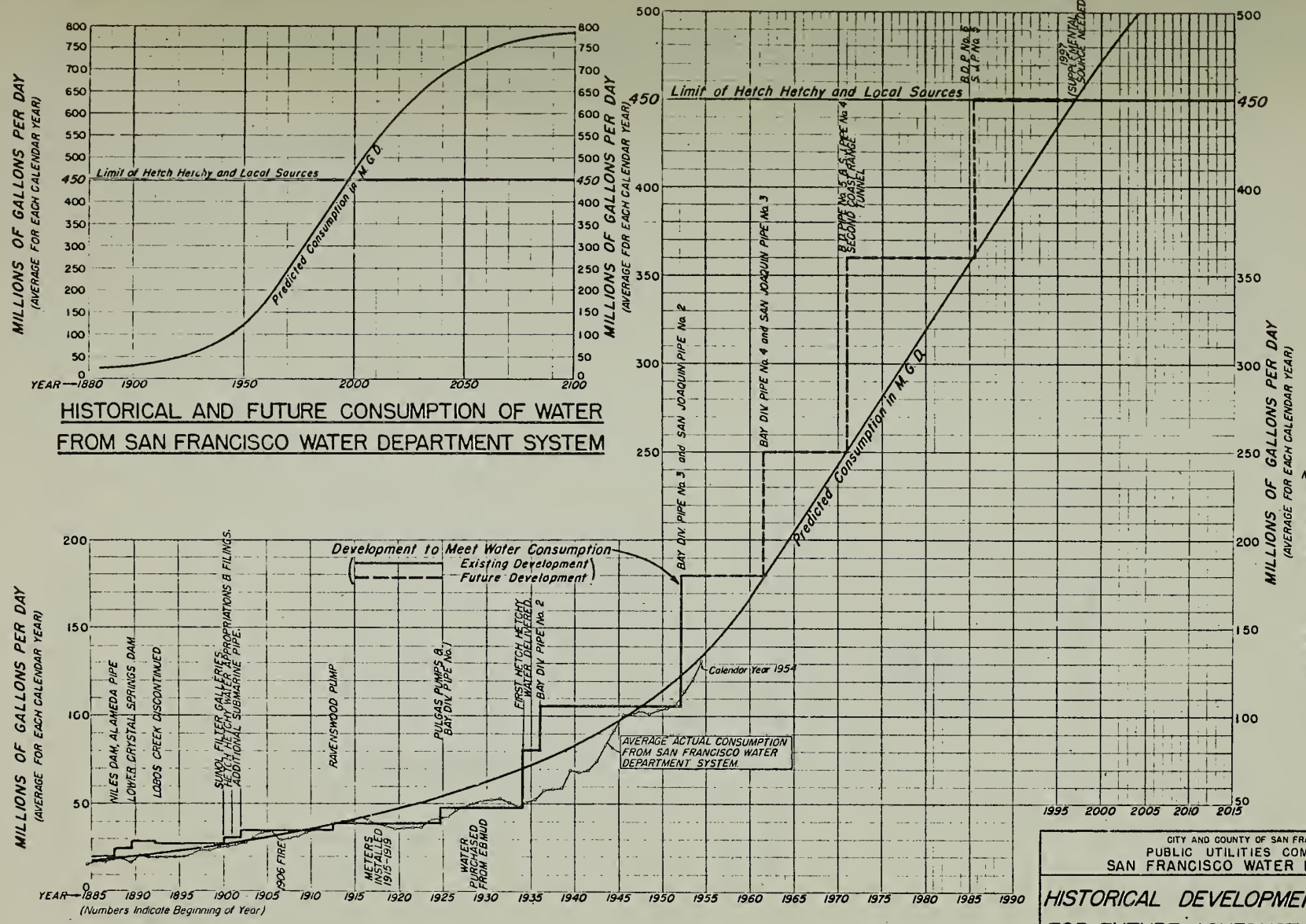
During the year 151.9 acres of land were sold and 14.8 acres were purchased, making a net decrease of 137.1 acres during the past year and resulting in a total of 63,184.8 acres being held under the Department's jurisdiction.

Chemical treatment of all water supplies has been coninuous and all consumers received water that was in full compliance with State and Federal standards for potability.

During the fiscal year the Department prepared 46 contracts for construction work and for furnishing of equipment, totaling in amount of $1,260,000.

This foreword would not be complete without expressing a sincere appreciation to our personnel for their loyalty and cooperative efforts in maintaining and improving the efficiency of the Department.

HISTORICAL AND FUTURE CONSUMPTION OF WATER FROM SAN FRANCISCO WATER DEPARTMENT SYSTEM



NOTE:-

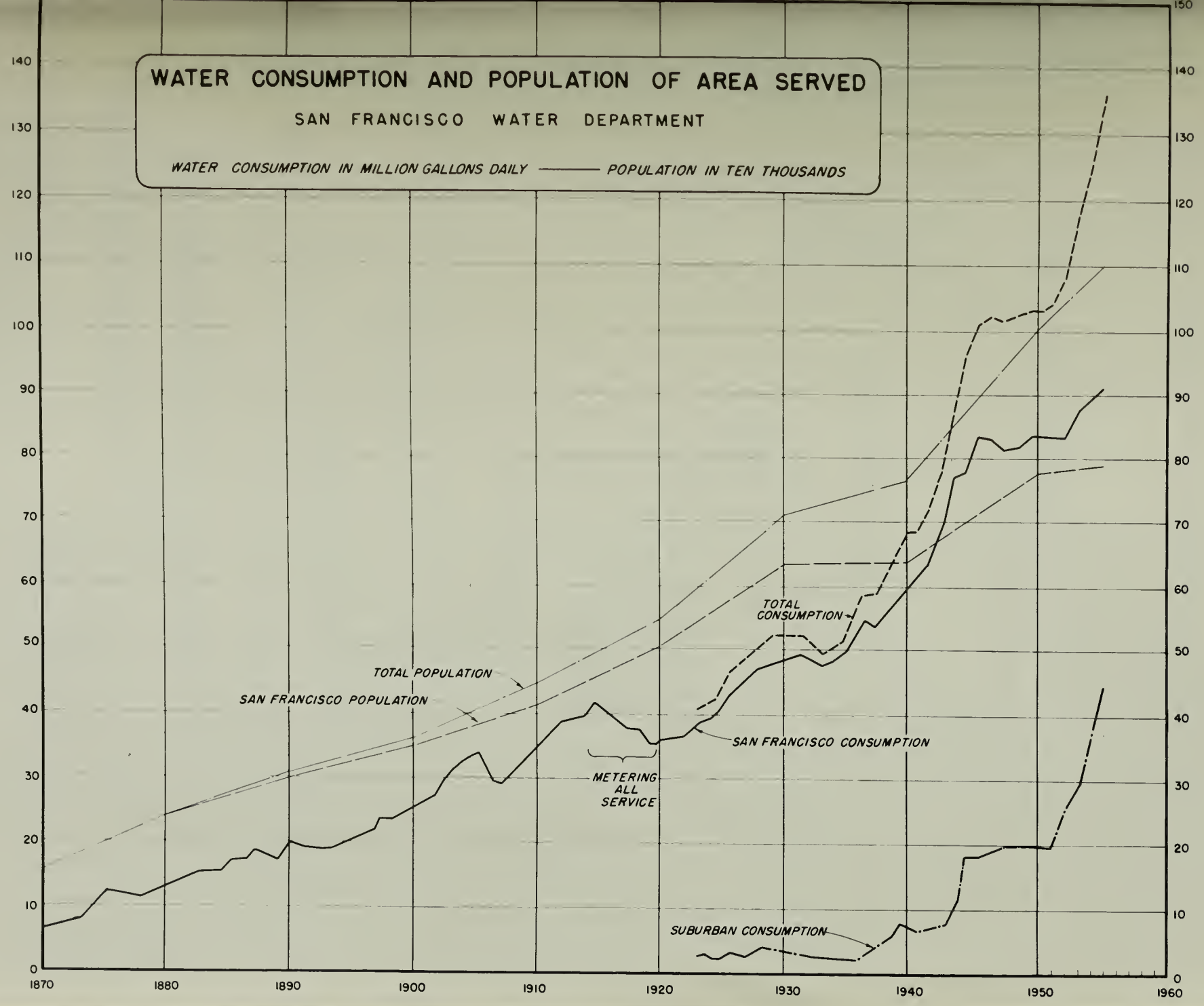
Aqueduct development to meet water consumption is for delivery to the peninsula reservoirs, and consumers from main aqueduct, and does not include facilities for delivery and distribution therefrom.

Local production of record has varied from none to 94 M.G.D. (Average for one Year). The average for about 60 years is approximately 50 M.G.D. But the average long range safe yield is about 30 to 50 M.G.D.

CITY AND COUNTY OF SAN FRANCISCO
PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

HISTORICAL DEVELOPMENT & PROGRAM FOR FUTURE AQUEDUCT CONSTRUCTION

APPROVED	SCALE AS SHOWN	BY J.S.G.	DR. D.J.S.	DRAWING NO. X-1682 C
APPROVED		TR. D.J.S.	CH.	
GENERAL MANAGER AND CHIEF ENGINEER		DATE NOV. 8, 1955	REVISED	


WATER CONSUMPTION AND POPULATION OF AREA SERVED
SAN FRANCISCO WATER DEPARTMENT
WATER CONSUMPTION IN MILLION GALLONS DAILY
POPULATION IN TEN THOUSANDS
TOTAL POPULATION
SAN FRANCISCO POPULATION
TOTAL CONSUMPTION
SAN FRANCISCO CONSUMPTION
METERING ALL SERVICE
SUBURBAN CONSUMPTION
0
10
20
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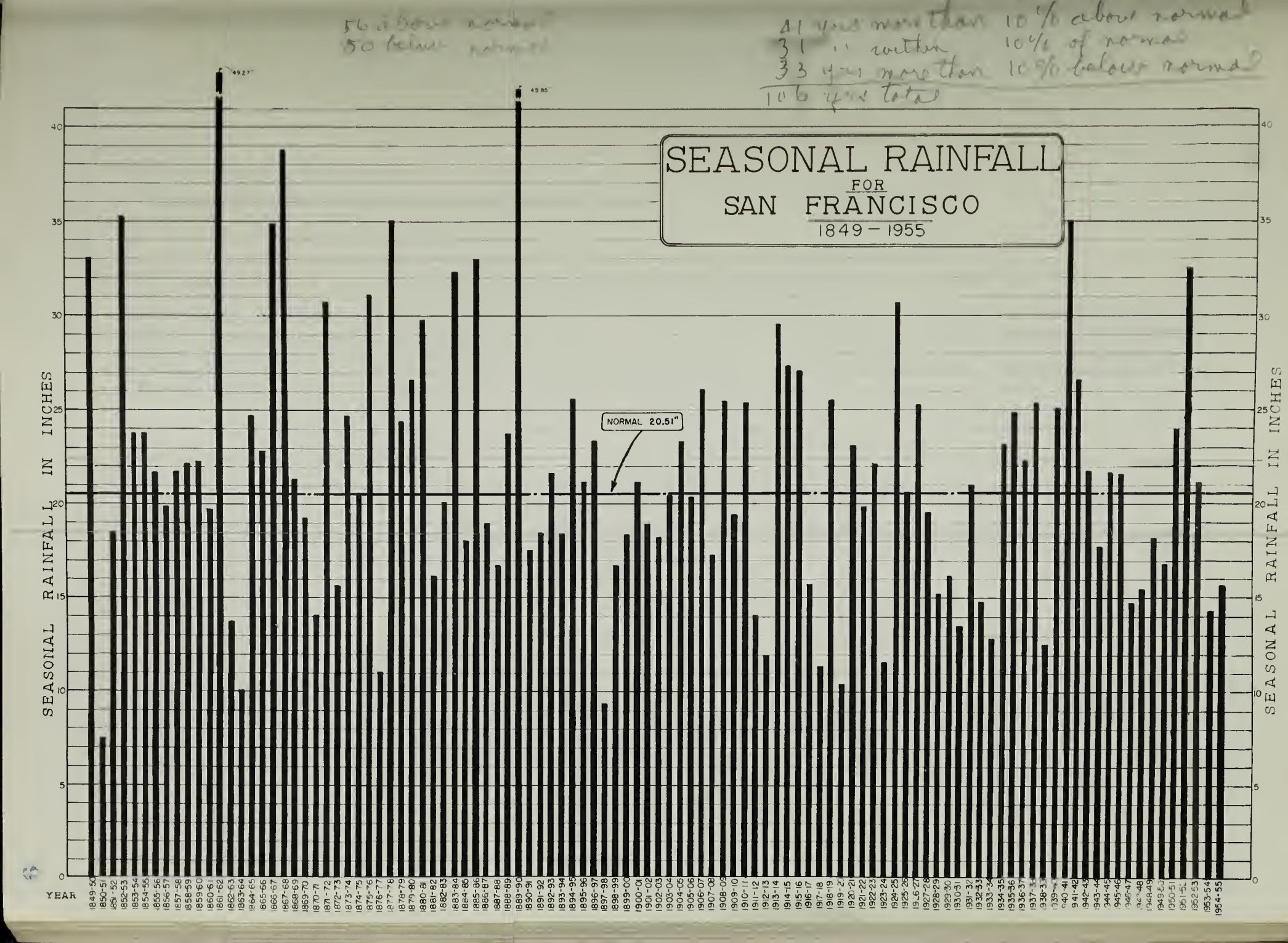
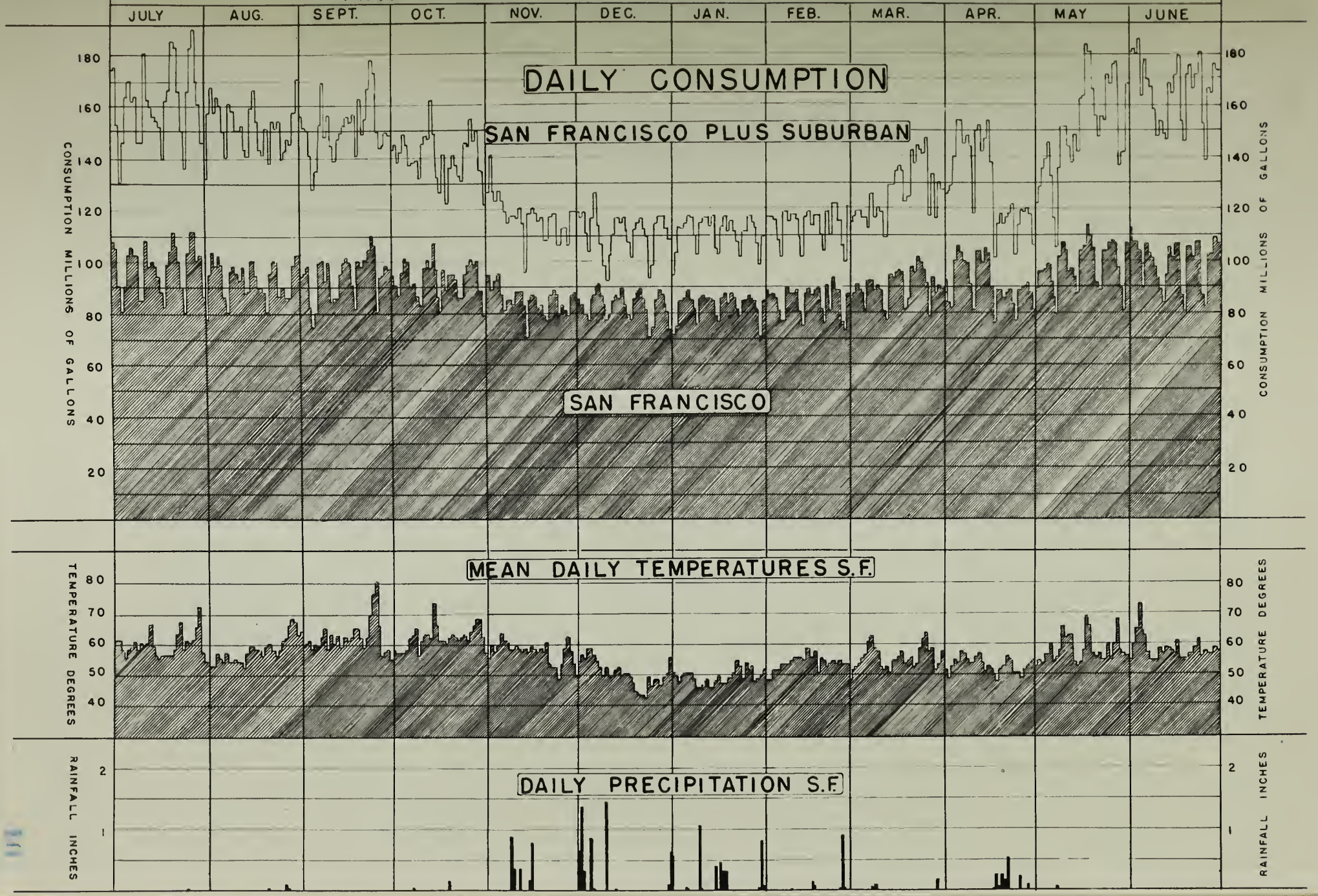

SEASONAL RAINFALL
FOR
SAN FRANCISCO
1849 – 1955
NORMAL 20.51"
4927"
4585
SEASONAL RAINFALL IN INCHES
SEASONAL RAINFALL IN INCHES
YEAR
0
5
10
15
20
25
30
35
40

CONSUMPTION, TEMPERATURE AND PRECIPITATION RECORDS 1954-1955



WATER PRODUCTION

GENERAL OPERATIONS:

Total water consumption during the year was 49,522.2 million gallons, averaging 135.9 million gallons per day, which is 10.9 million gallons per day more than during the preceding year.

Deliveries to the San Francisco comsumption area averaged 91.1 million gallons daily, with deliveries to suburban areas averaging 44.8 million gallons daily. (Some Suburban deliveries in northern San Mateo County are included in the San Francisco consumption area figures.)

Deliveries from Hetch Hetchy were	39,966.8 million gallons.
Draft from Local Production and storage was	9,555.4 million gallons.
Total	49,522.2 million gallons.

The total delivery from Hetch Hetchy since October 18, 1934 now amounts to 358,334 million gallons or an average of 47.4 million gallons per day.

The 24 hour peak consumption for the entire system was 190.0 million gallons, occurring on July 28, 1954 and the month of June 1955 had the highest daily average consumption of any month during the year averaging 165.8 million gallons daily.

All water delivered to San Francisco was, as heretofore, supplied entirely from San Andreas and Crystal Springs Reservoirs in San Mateo County. Those reservoirs were replenished from run-off, by water drawn from Calaveras Reservoir in Alameda and Santa Clara Counties and from the Hetch Hetchy System in the Sierra Nevada Mountains.

Practically all water deliveries outside the City of San Francisco are made to vendors who take large quantities at the department's transmission mains. These vendors, individual cities, public utility companies, water districts or private individuals own and operate their own distribution systems.

This department delivers water to practically all cities and towns in San Mateo County; to Palo Alto, Woodside, Mountain View, Sunnyvale, Los Altos and unincorporated areas in Santa Clara County on the west side of the Bay; and to the City of Hayward and other relatively small deliveries on the east side of the Bay from Hayward south as far as Milpitas.

RAINFALL, CATCHMENT AND STORAGE:

Rainfall at Calaveras Reservoir was 17.18" which is 72% of normal and is .09" higher than lasts years subnormal precipitation. On July 1, 1954 the storage in Calaveras Reservoir was 21,644 million gallons and on June 30, 1955 the storage was 21,433 showing a net loss of 231 million gallons for the year. During the fiscal year 5,974 million gallons were withdrawn for consumption, 96 million gallons spilled into the Creek and 231 million withdrawn from storage, making a useable productivity of 5,839 million gallons, equal to 15.7 million gallons per day.

Rainfall over the Peninsula watersheds averaged approximately 64 percent of normal as indicated by the readings at the five rain gauging stations on the watershed. The San Andreas station showed 22.06" which was 59.4 percent of normal; the Pilarcitos station 28.40" which was 63.0 percent of normal; the Lower Crystal Springs station 17.66" which was 64.3 percent of normal; the Upper Crystal Springs station 19.64" which was 61.6 percent of normal; and the Crystal Springs Cottage station 20.07" equal to 74.4 percent of normal. Additional comparative data from rain gauging stations are listed in Table II.

Total Peninsula storage on July 1, 1954 was 24,059 million gallons which was the maximum Peninsula storage during the year. The minimum total Peninsula storage of 21,870 million gallons occurred on April 15, 1955, but Hetch Hetchy deliveries increased storage to 23,142 million gallons by June 30, making a net loss for the year of 917 million gallons. The net useable production from the Peninsula Watershed was 8.0 million gallons per day.

Total local storage including City, Peninsula and Calaveras was 48,293 million gallons on July 1, 1954, receded to a low of 40,890 million gallons on December 1, 1954, increased to a maximum of 47,672 million on May 23, 1955 and dropped to 47,134 million gallons on June 30, 1955, a net loss for the year of 1,159 million gallons.

TRANSMISSION:

The water demand in the San Francisco consumption area required a daily average delivery of 91.1 million gallons from the Peninsula Reservoirs. Of this amount, an average of 38.9 million gallons daily was delivered through the 60-inch and 44-inch Crystal Springs Pipelines; 31.2 million gallons daily through the San Andreas 54-inch and Sunset 60-inch pipes and, in addition, the Sunset 60-inch line carried an average of 7 million gallons a day from Crystal Springs pipeline to Sunset Reservoir through the Lake Merced Pumps; 5.8 million gallons a day through the College Hill Pipe Line and 8.2 million gallons daily through the Baden-Merced 30-inch Branch Pipe Line.

The additional suburban consumption, averaging 44.6 million gallons daily was supplied directly from the several transmission and supply lines at various points in Alameda, Santa Clara and San Mateo Counties.

An average of 35.6 million gallons daily was pumped from Crystal Springs Reservoir into the San Andreas Reservoir through the Crystal Springs aqueduct and to augment the San Andreas water supplied San Francisco an average of 7.9 million gallons daily was pumped by Alemany Pumps and an average of 7.0 million gallons daily was pumped by Lake Merced Pumps into the higher levels of the City.

The three Bay Division Pipe Lines carried an average of 121.4 million gallons daily to the westerly side of San Francisco Bay. Of this amount, an average of 100.0 million gallons daily was delivered into Crystal Springs Reservoir and the remaining 21.3 million gallons per day was delivered to consumers from the aqueduct and the Palo Alto Pipe Line. Of the total amount of 121.4 million gallons per day, Hetch Hetchy supplied 105.0 million gallons daily and the Alameda sources, 16.4 million gallons daily.

RESERVOIRS:

On July 1, 1954 the storage in Calaveras Reservoir was 21,644 million gallons or 69 per cent of its capacity. This storage dropped to 15,678 million gallons (gauge - 107'-2 3/4") on November 3, 1954; increased to a high of 21,753 million gallons (gauge - 124'-4¼") on May 23, 1955 and at the end of the fiscal year the storage was 21,433 million gallons, or 231 million gallons less than at the beginning of the fiscal year.

Storage in Crystal Springs Reservoirs decreased from 17,486 million gallons on July 1, 1954 to 16,489 million gallons (gauge 108'-4½") on November 29, 1954. This storage was increased, partially by runoff, to 18,295 million gallons (gauge - 112' 6½") by February 7, 1955. At the end of the year there were 17,107 million gallons in storage, a net loss of 378 million gallons during the year, leaving the reservoir filled to 76% of its rated capacity.

San Andreas Reservoir storage on July 1, 1954 was 5,740 million gallons or 93% of its capacity. This storage was allowed to drop to the year's low of 4,773 million gallons (gauge - 76'-8") on February 14, 1955 to provide capacity for the runoff from San Andreas and Pilarcitos watersheds. Throughout the year a high level was maintained by operating Alemany Pumps and pumping from Crystal Springs Reservoirs. The maximum storage of 5,954 million gallons (gauge - 84'-6") was on August 24, 1954 and on June 30, 1955 the storage was 5,586 million gallons, a net loss of 154 million gallons.

On July 1, 1954 the storage in Pilarcitos Reservoir was 834 million gallons. This high level was maintained until July 20, 1954 when the seasonal drop started. This drop continued to a minimum storage of 310 million gallons on February 1, 1955. At the end of the fiscal year there was a recovery of 139 million gallons to a total storage of 449 million gallons or 44% of the reservoir's capacity. There was a net loss on storage of 385 million gallons in this reservoir.

During the year Pilarcitos Reservoir supplied 1,418.3 million gallons to San Adreas Reservoir; deducting the loss in storage of 384.8 million gallons makes an average production for the fiscal year of 2.8 million gallons per day.

PUMP OPERATIONS:

The Irvington Pump Station did not operate during the year. There was no water withdrawn from the Pleasanton Well Field for for conveyance to Sunol.

In order to maintain high water level in San Andreas Reservoir it was necessary to operate the Crystal Springs-San Andreas pumps every day during the entire year. A total of 12,999 million gallons was pumped from Crystal Springs to San Andreas Reservoir making a daily average pumpage of 35.6 million gallons.

Baden Pumping Station was not operated during the year but the operating units were maintained in a condition of readiness. Motors were kept dry and turned over every month.

The Alemany Pumping Station was operated until February 6, 1955 pumping a total of 2,897 million gallons from the University Mound Reservoir into the College Hill and Sunset Systems, which receive their major supply from San Andreas Reservoir.

The Lake Merced Pumping Station pumped 2,549.6 million gallons into Sunset Reservoir from February 8, 1955 to the end of the fiscal year. This water came from Crystal Springs Reservoir through the Crystal Springs No. 2 and Sunset Supply Pipe Lines.

PIPE LINES:

The Sunol Pipe Line from the Alameda Creek Siphon to the Town of Sunol, delivered a total of 318.6 million gallons of water during the year. Of this total 298.7 million gallons were used for irrigation and the balance of 19.9 million gallons was used for the Sunol domestic supply. Additional irrigation water was drawn directly from the Calaveras Pipeline south of the Alameda Creek's siphon. This amounted to 3.3 million gallons making the total used for irrigation 302.0 million gallons.

The Niles-Irvington Pipe Line carried no flow during the year.

The Crystal Springs 60-inch Pipe Line was in service throughout the year carrying 18,237 million gallons, an average of 50.0 million gallons per day from the reservoir. The Crystal Springs 44-inch Pipe Line carried 7,001 million gallons, an average of 19.2 million gallons per day for the year. Of this total of 69.2 million gallons daily, 31.0 million gallons daily were delivered to, and used in, the University Mound Distribution System and by consumers between it and the Millbrae Headquarters; an additional 7.9 million gallons per day delivered to University Mound Reservoir was pumped through the Crosstown Pipe Line to higher level distribution systems in San Francisco; 3.9 million gallons per day were diverted from the Crystal Springs 60-inch Pipe Line into the Baden-Merced Branch Pipe Line, through which it was delivered to consumers long the Pipe Line and to Merced Manor Reservoir; 7.0 million gallons per day, average, was transferred to Sunset Supply Line and boosted by Lake Merced Pumps to Sunset Reservoir, and the balance of 19.4 million gallons daily was delivered to the distribution systems of the several Peninsula Communities, as far south as San Carlos.

During the fiscal year the three Bay Division Pipe Lines carried a total of 44,294 million gallons to the westerly side of the Bay, of which 36,541 million gallons were delivered through the Pulgas Temple to Crystal Springs Reservoir.

In previous years deliveries through the Palo Alto Pipe Line were reported. In January 1955 the daily meter readings were discontinued on this line as it was believed the need for this information had been filled. These quantities are now included in "Hetch Hetchy consumption."

Deliveries to the College Hill Distribution District averaged 8.1 million gallons per day. Of this amount 5.8 million gallons daily were delivered through the 30-inch College Hill Pipe Line, 1.7 million gallons per day came from Alemany Pumps via the Crosstown Pipe Line and 0.6 of a million gallons per day from San Andreas Reservoir through San Andreas 54-inch pipe line and the Crosstown pipeline. The 5.8 million gallons daily supplied through the College Hill Pipe Line came from the San Andreas Reservoir via the 44-inch San Andreas Pipe Line.

The Baden-Merced Branch Pipe Line carried an average of 8.2 million gallons per day which was supplied from the 60-inch Crystal Springs Pipe Line, with the exception of 4.3 million gallons per day average from San Andreas 44-inch Pipe Line.

During the year the 54-inch San Andreas Pipe Line carried a total of 11,371 million gallons of water, or an average of 31.2 million gallons per day, from San Andreas Reservoir to Sunset and the other high San Francisco Pressure Districts and to consumers outside of the City and County of San Francisco.

AQUEDUCTS:

The Sunol Aqueduct carried water throughout the entire year from the Sunol Filter Galleries to Niles Reservoir.

The Crystal Springs Aqueduct was in operation throughout the year, carrying a total of 12,999 million gallons of water to San Andreas Reservoir from Crystal Springs Reservoir.

The Pilarcitos Aqueduct to San Andreas Reservoir was in service during the entire fiscal year and carried an average of 3.9 million gallons daily to San Andreas Reservoir. This aqueduct has a capacity of 40 million gallons per day.

ALAMEDA DIVISION - GENERAL:

Draft from Calaveras Reservoir was discontinued on November 2, 1954 and resumed on June 28, 1955.

The poles at the aerator area which carry power lines for the aerator, chlorine station and tunnels of Calaveras Dam were renewed and relocated. The chlorine station, aerator building and screen platform area were painted, as well as the aerator pipes.

A new launch was delivered to replace the old one. This is a 24 foot launch powered by a Gray marine engine and will permit greater quantities of copper sulphate to be disseminiated in one trip. The boathouse is being repaired and altered to accommodate the new launch. A loading float is, also, under construction.

The 19 foot tunnel was cleaned and the valve platform at the outlet tunnel was rebuilt.

There were only two leaks on the Bay Division Pipe Line No.1 this year, both of them due to electrolysis. One new bent was replaced between Newark Slough and Dumbarton Point. Continued limnoria action on the wood will necessitate replacement of additional bents in the near future. The pipeline was scraped and painted from Newark Gate House to Dumbarton Gate House and all exposed areas east of Newark were given the same treatment.

Two new services were installed on the Calaveras Pipe Line to supply irrigation water to land leased for the purpose of raising strawberries. There were three new services installed on the Bay Division Pipe Line No. 3. Two services were for the Milpitas Water District and the other for the Alameda County Water District. In addition to the new services mentioned, the service for the City of Hayward was increased to three 8-inch turbine meters. The large service at Newark supplying the Alameda County Water District now consists of three 6-inch compound meters.

Well O-1 in the Pleasanton Well Field, which was operated once a week to supply local demands, was put into daily operation on June 13, 1955 to supply the Castlewood Country Club. No water was pumped by the Department from Pleasanton Wells for export.

The Sunol Office building was repaired and painted.

The channel of Alameda Creek adjacent to the Water Temple was relocated to protect the picnic grounds which were being eroded.

All roads in the Division were graded and fireguarding and fence repairing was done throughout the Division.

ALAMEDA COUNTY WATER DISTRICT:

During the year, a total of 722,995,000 gallons of water was released to the Alameda County Water District for replenishment to the underground gravel of the Niles Cone area. Under the terms of the 1920 award, 747,020,000 gallons were due the district during the year.

The quantities of water due the District and the quantities released by the Water Department to the District for replenishing the underground waters for each of the past five years are, as follows:

Year	Due the District	Released to the District
1950	975,861,000	220,670,000
1951	8,095,000	2,900,694,000
1952	350,185,000	1,896,660,000
1953	757,955,000	1,507,419,000
1954	501,614,000	1,251,654,000
1955	747,020,000	722,995,000
Totals	3,340,730,000	8,500,092,000

PLEASANTON TOWNSHIP COUNTY WATER DISTRICT:

The Sheriff of Alameda County continued to use the U.S. Navy's Camp Shoemaker as Santa Rita Rehabilitation Center during the fiscal year. Water supplied to this institution, as well as to the former Naval housing project, Komandorski Village and the Parks Air Force Base, was taken from the Navy's 4.105 and 100 acre tracts within the Pleasanton Water District. Camp Parks increased withdrawal of ground waters which varied from a high of 3.3 million gallons per day in June, 1955, which is 1.1 million gallons per day increase over the previous year, to a low of 0.9 million gallons a day in December 1954, the same as the previous year.

Withdrawals for the above enumerated purposes together with those for domestic and irrigation use within the District, combined with subnormal rainfall, continued to lower the water table in this valley. Water level in Pilot Well W-103X had a seasonal high point of 80.2 feet below ground surface in March 1955 as compared to a seasonal high of 69.8 feet below ground surface in April 1954.

The Town of Pleasanton continued, throughout the year, to obtain all of its water supply from Water Department Wells, located at Black Avenue and Santa Rita Road, and paid all resulting electric power bills which payments, in conformity with the Department's agreement with the Town, were reimbursed by the Water Department. Throughout the year, the Department, also, reimbursed the District for electric power charges for pumping "Community Wells" and paid power bills rendered to land owners, except as otherwise provided in the "Pleasanton Township County Water District Agreement," all of which was in conformity with the Department's obligations under the Pleasanton Water District agreement.

PENINSULA DIVISION - GENERAL:

Pumping Stations:

The Crystal Springs booster pumps were not operated as there was adequate flow from Hetch Hetchy and Calaveras to maintain a high level in the reservoir. However, the pumps were in operable condition throughout the year. The tar and gravel roof on the building was replaced.

Following completion of the 78" line and cross connections at the Dam it was necessary to make repairs to the roads and the parking area, and the grounds were then prepared for lawn and landscaping.

The mesh fence around the Baden Pumping Station was cleaned and painted and the grounds were maintained in an orderly condition.

Reservoirs:

The boathouse on Upper Crystal Springs Reservoir was rebuilt to accommodate the larger launch purchased December 7, 1953.

A new water supply storage tank and a new butane gas furnace were installed at the Sawyer Camp Cottage.

The new Keeper's cottage on the hill above Lower Crystal Springs Dam was completed. The new location provides a view of a large portion of the lake and area under the Keeper's surveilance. A new entrance road from the Skyline Boulevard to this cottage was constructed to overcome the hazards of the old road entrance to this area. The old Keeper's cottage was demolished to provide turning room for trucks supplying the new Crystal Springs Fluoride Plant.

Fence damaged along the Skyline Boulevard resulting from automobile accidents was repaired as required and charged to the offending automobile owner whenever possible.

Certain areas in San Andreas Reservoir, now overgrown with weeds and rushes, were cleared to the extent possible with available labor when lake levels permitted work. However, these growths are getting out of control because of labor shortages and additional help must be provided to allow more time for weed control work to prevent deleterious effects on the water from this reservoir.

Pilarcitos Reservoir was drawn down to make repairs to the Forebay and with normal rainfall the reservoir would have refilled. A complete new logboom, including new chain and wire cable, was installed on this reservoir replacing the old boom which was waterlogged and continually breaking.

Transmission Lines:

After 85 years of service the College Hill 30-inch Pipe Line was abandoned June 1, 1955 from the old 12 Mile House to San Francisco. Thirty three consumers served from this section of the line were given 1½ years notice to make arrangements for another source of supply.

Leaks were repaired on transmission lines throughout the division as required. Six leaks occurred on the Crystal Springs Pipe Line No. 1 during the year; one on the trestle at South San Francisco; one at Chapin Avenue, South San Francisco; one at the north end of the South San Francisco underpass; one at Sierra Point; one in the Howard Tract and one near Crystal Springs Dam. Six leaks occurred in the Crystal Springs No. 2 Line between South San Francisco and Geneva Avenue at Bayshore, all the result of electrolysis.

Eight leaks from electrolysis occurred on the Bay Division lines, six being in Redwood City and two near Ravenswood. Three leaks occurred in Burlingame; one bad break near 31st Avenue in San Mateo and another bad break near the Belmont-San Carlos City limits, the latter two causing a shutdown of nearly three days for each repair. Broken stems in blowoff valves at 24th and 25th Avenues were replaced while the line was down for repairs.

A line valve was installed on the Alameda line near 31st Avenue. This valve was installed to maintain service to this point should there be a bad break in this line to the south.

The Cross connection between the 60" and 44" Crystal Springs pipe lines at Brisbane was cut and the housing over the lines dismantled to prepare for relocation of the lines.

Maintenance work on the Bay Division pipe lines during the year included repair of expansion joints in the pipe on the bridge to the caisson which were leaking badly, spot painting of portions of the 60" and 66" pipe where needed and the initiation of a program of complete overhaul of the pipe supports on the trestle across the marsh under the 60-inch pipe. Lumber removed from the pipe housing of the Crystal Springs lines at Brisbane will be used at a later date to house as much of the 60" line between Ravenswood and the bridge as possible.

The creek channel at Vera Street in Redwood City has deepened considerably and our 60 and 66 inch lines were obstructing stream flow and creating a pond. In accordance with Redwood City's requirements three 36" used pipes were installed as culverts under our lines to alleviate the condition.

Six hundred feet of the Crystal Springs-San Andreas canal housing was burned when a grass fire was started nearby. The cost of repairs, fire fighting and clean up was over $6,000.00. The trestles across ravines were repaired and a number of leaks were plugged with concrete.

There are two service lines supplied from Pilarcitos Aqueduct which should be discontinued at the first opportunity, the aqueduct not being suitable for continuous supply.

Equipment:

Four cars and two offices are now equipped with radios for inter-communication service, which has already proven very valuable in the regulation of water between transmission lines.

The following additional equipment was purchased for use in operation: (1) Machine for tapping transmission mains up to 12" under pressure, for metering connections; (2) Tilt bed trailer for transporting equipment to various stations along public highways; (3) Power saw for use in the carpenter shop; (4) Sanstrom blasting machine for cleaning pipe; (5) 1½" Centrifugal self-priming pump.

A pickup truck was purchased to replace a station wagon.

State Safety Inspectors checked equipment and all electric services at Headquarters, which, though very old, have caused no trouble but recommended changes to bring them up to conformity with the State Safety Code.

SUBURBAN METERS:

There were 57 new services installed during the year for suburban consumers. The total number of suburban meters at the close of the year was 1,071 of which 1,060 serviced 738 active consumers; a decrease of 5 active consumers for the year.

9,000 mg (over the above 5yr) average storage
15,000 " (from mined 5 Yrs)
23,000 " (from increased storage) "

= 5 months supply added (average effective storage) @ 150 mgd.

50% = 32,000 ± mg = 7 months

150 mgd) 32,000 mg
30 0
2 1 3 days supply @ 150 mgd

= 60% of an year safe supply locally

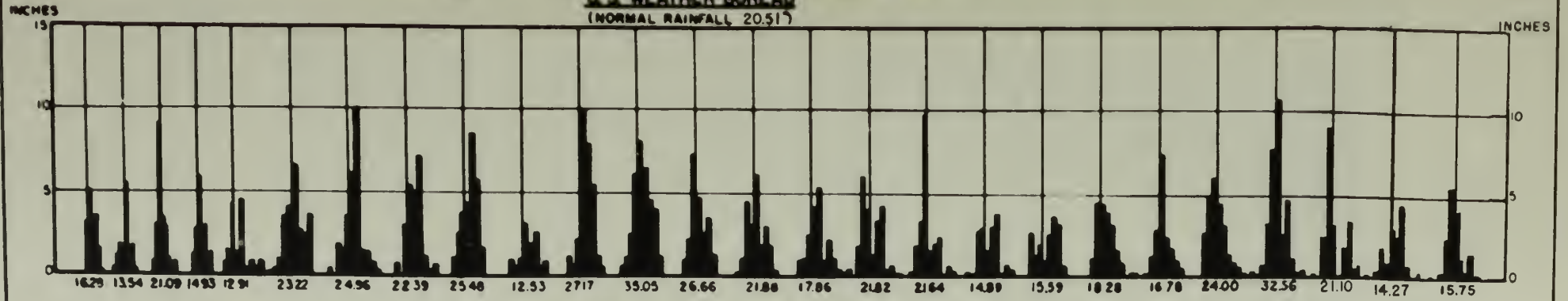
70% = 45,000 ± mg
300 days supply @ 150 mgd

= less than an year supply
= 10 months

100% full = 64,000 ± mg
427 days supply @ 150 mgd.
=
14 months

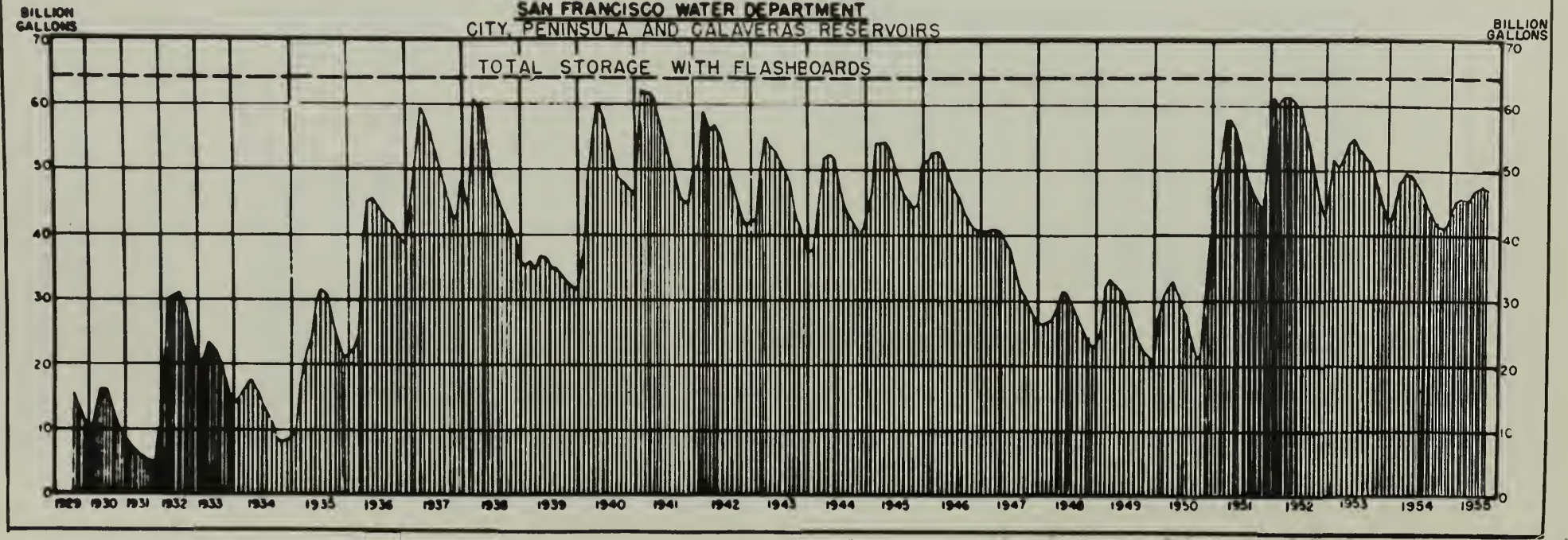
SAN FRANCISCO RAINFALL IN INCHES

U.S. WEATHER BUREAU
(NORMAL RAINFALL 20.51")



STORAGE IN BILLION GALLONS

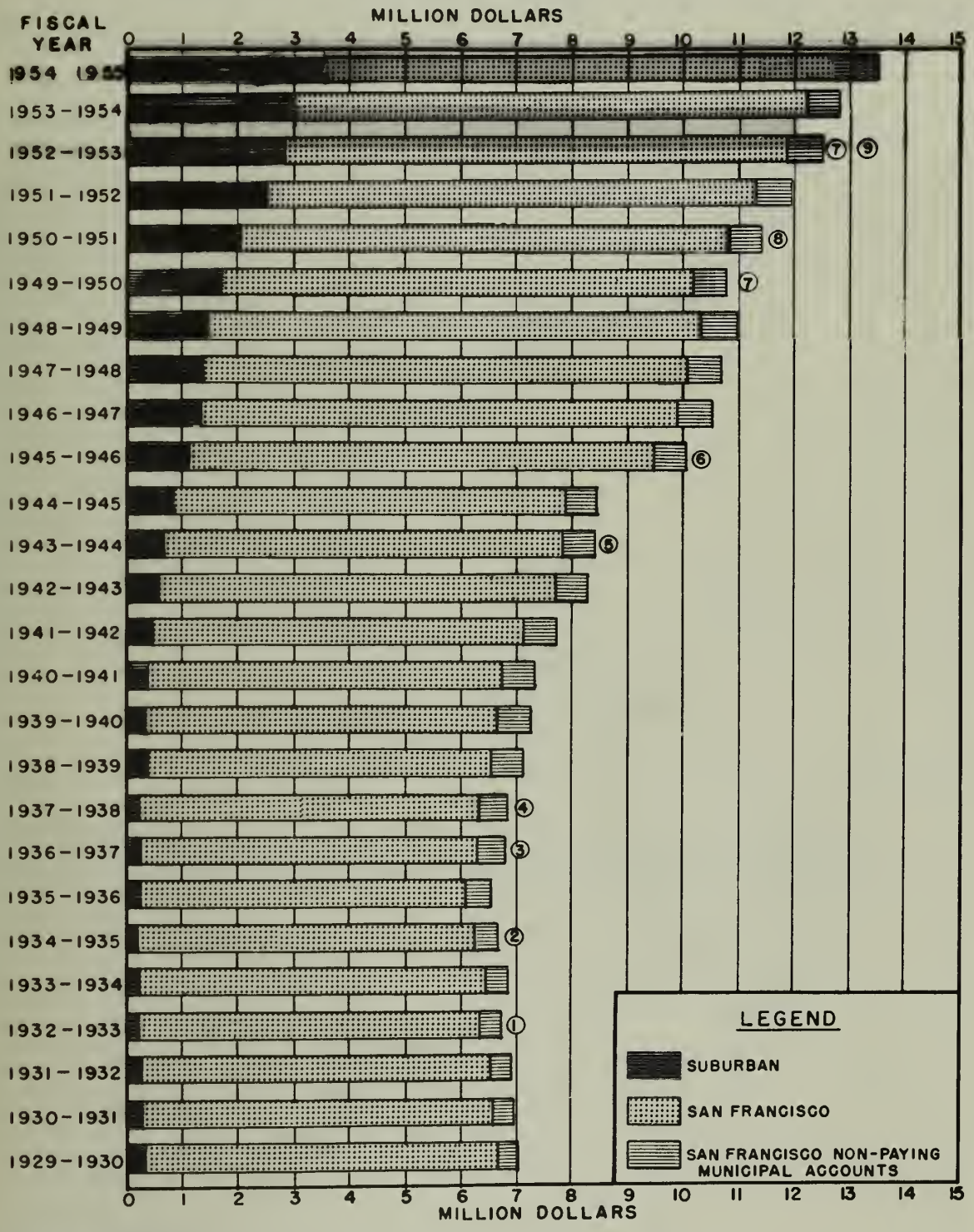
SAN FRANCISCO WATER DEPARTMENT
CITY, PENINSULA AND CALAVERAS RESERVOIRS



Average during wet periods (over 70% full
" " dry (or delivery) " under 50%

SAN FRANCISCO WATER DEPARTMENT

WATER SALES



RATE CHANGES:—

① — OCT. 26, 1932 — 75% REDUCTION ON FIRE SPRINKLER SERVICE CHARGES.

② DEC. 1, 1934 — 10% REDUCTION ON ALL RATES EXCEPT HYDRANTS AND SPRINKLERS.

③ JAN. 1, 1937 — 7% & 48% REDUCTION ON INCREASED USAGE AT INDUSTRIAL & WHOLESALE RATES.

④ JAN. 1, 1938 — 7% & 48% REDUCTION APPLIED TO ALL " " " " " "

⑤ DEC. 1, 1943 — 15% REDUCTION TO ALL CONSUMERS WITHIN CITY & COUNTY OF SAN FRANCISCO.

⑥ SEPT. 1, 1945 — PRECEDING 15% REDUCTION REMOVED FOR CONSUMERS WITHIN CITY & COUNTY OF SAN FRANCISCO. 15% INCREASE FOR SUBURBAN CONSUMERS.

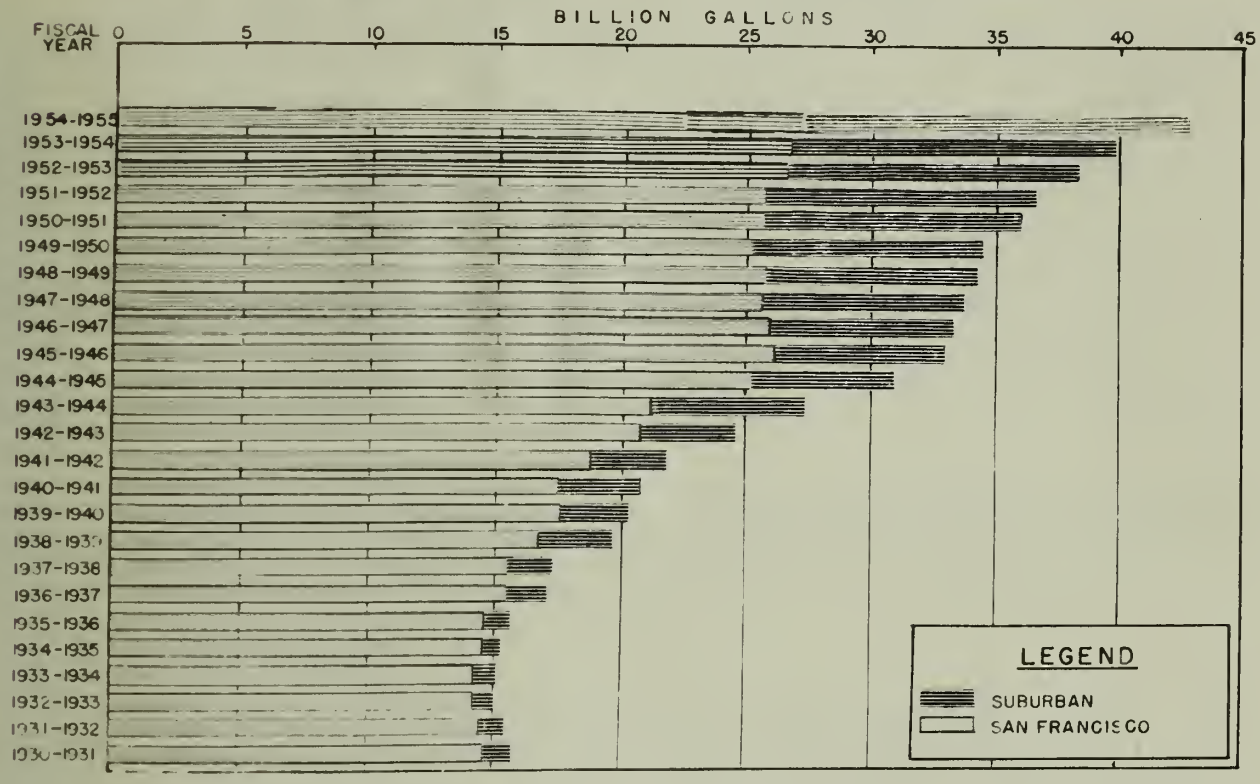
⑦ ~~JULY 1, 1949 — INCREASE OF HALF CENT PER 100 CU. FT. — SAN CARLOS & SAN MATEO.~~ — DELETED 7-1-53

⑧ FEB. 1, 1951 — INCREASE FOR FOURTH BLOCK WATER TO 15 CENTS FOR CITY & 16 CENTS FOR SUBURBAN; 10% DISCOUNT ON FOURTH BLOCK IF WATER WERE NOT TAKEN FOR RESALE.

⑨ JULY 1, 1952 — BEGAN CHARGING REGULAR RATES TO 14 CONTRACT REDUCED RATES CONSUMERS.

SAN FRANCISCO WATER DEPARTMENT

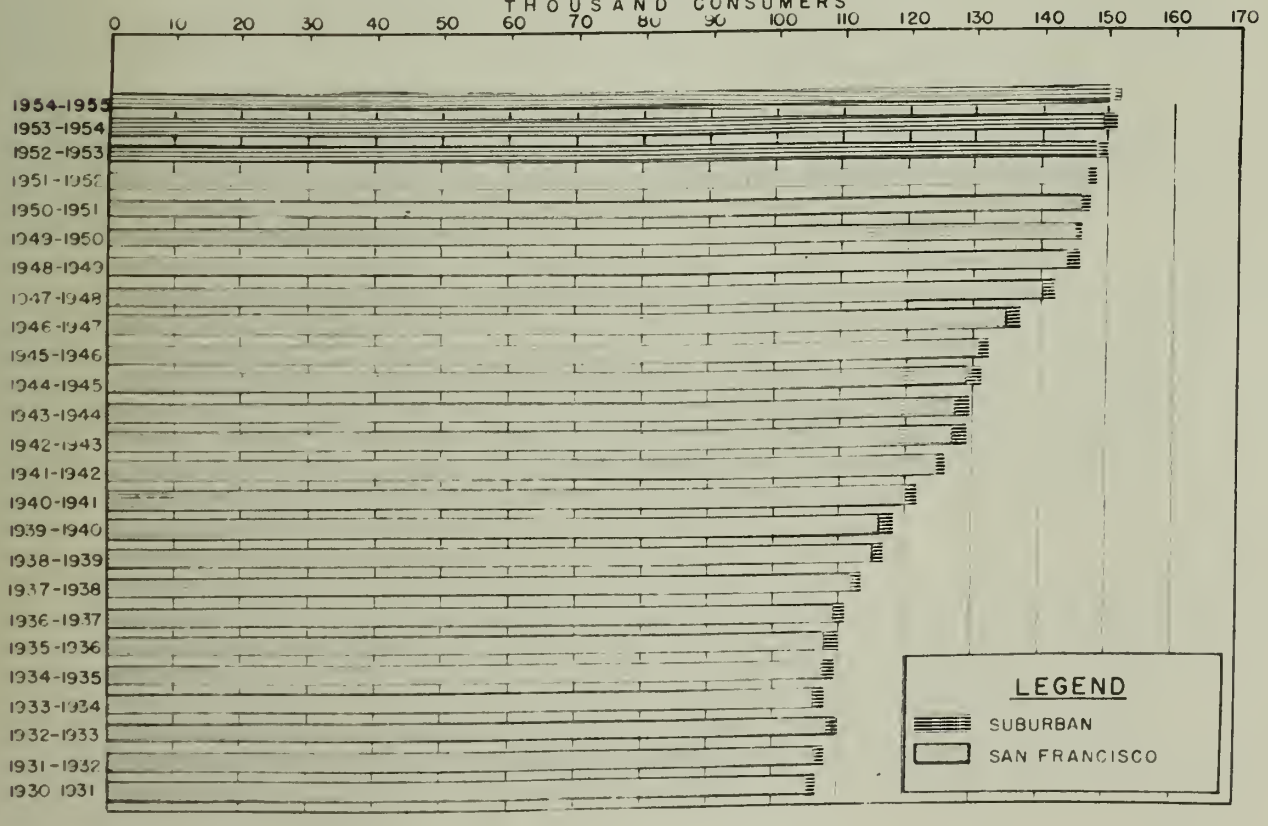
WATER DELIVERED AT CONSUMERS METERS



SAN FRANCISCO WATER DEPARTMENT

NUMBER OF ACTIVE CONSUMERS

AS OF JUNE 30



CITY DISTRIBUTION DIVISION

WATER CONSUMPTION:

The average daily demand for the fiscal year for the City and County of San Francisco consumption area was 91,079,523 gallons, an increase of 1,366,548 gallons, or about 1.5 percent over the previous year. There was an increase in consumption in all of the residential districts, except Stanford Heights and College Hill, amounting to 3,921,109 gallons. Forest Hill increased 4.7 percent, Sunset 5.2 percent, Merced Manor 15.0 percent. Stanford Heights and College Hill Districts showed a decrease in average daily consumption amounting to about 13.2 and 10.5 percent respectively. The industrial district, i.e. University Mound, showed an increase of 197,627 gallons, or 6.4 percent. The new Sutro Reservoir was placed in service which supplies some of the area formerly supplied from Stanford Heights and Sunset.

The maximum daily demand of 113,394,000 gallons for the City consumption area during the year occurred on May 18, 1955 while the day of minimum consumption occurred on November 14, 1954 and amounted to 69,336,000 gallons.

OPERATING CONDITIONS:

Due to the fact that San Francisco again experienced a rather cool year, there having been no hot weather for any length of time, there were no "no water" complaints due to the inadequacy of the system.

During the early part of 1955 the new Sutro disbribution reservoir at elevation of about 500 feet, was gradually placed into service. So far only the Sunset residential district, which was formerly supplied from the Stanford Heights and Sunset Reservoirs, has been transferred. In general, it is attempted to give higher pressure to those houses having less than 40 pounds per square inch (Sunset Reservoir), and lower pressure to those houses having over 90 pounds per square inch (Stanford Heights Reservoir).

In the near future it is hoped to bring the Sutro Reservoir supply to the areas north of the Panhandle of Golden Gate Park. The hydro-pneumatic station known as the Lone Mountain Pump Station to supply the San Francisco College for Women has been completed. The necessary divide gate in the Stanford Heights 20-inch feeder main will soon be installed. The electric controls for the electric pump at Central Pump Station will, also, be installed shortly.

The transfer to the Sutro Reservoir of the area south of Ocean Avenue and east of Mission Street cannot be accomplished until two pump stations are completed, one at Baltimore Way and Drake Street, and the other at approximately Brazil Avenue and Munich Street. These stations are required to establish adequate pressure in the higher grounds now being supplied by Stanford Heights Reservoir, which supply will be eliminated when the transfer is made to the Sutro Reservoir.

FEEDER MAINS:

From past experience, a hot spell of several days' duration would create a serious situation throughout the City. This condition can only be overcome by the laying of additional feeder mains in the various distribution districts, as well as the rearrangement of the existing feeder mains. Additional supply mains should also be given consideration. Funds were made available in the budget for the laying of some of the feeder mains.

Following is a list of additional feeder mains required, by districts:

Sunset Reservoir District	Feet
12" - 19th Ave. & Holloway to Eucalyptus & Melba	4600
12" - O'Farrell & Octavia to O'Farrell & Larkin	2400
12" - Dolores & 21st St. to Dolores & 24th St.	1700
University Mound Reservoir District	
16" - 22nd & Indiana Sts. to 22nd & 3rd Sts.	800
12" - Woolsey & Goettingen to Jamestown & 3rd St.	4000
College Hill Reservoir District	
12" - Ellis & Buchanan to Geary & Scott	3000
16" - Franklin & Market to Franklin & Ellis	3500
12" - Webster & Hayes to Grove & Buchanan	1000
16" - Sanchez & 17th St. to Fillmore & Haight	4000
16" - Bowdoin & Alemany to Girard & Mansell	7000

Following is a list of feeder mains which should be transferred from one district to another for better distribution, and which should be accomplished when the above-mentioned feeder mains have been laid:

	LOCATION		RESERVOIR	
Size	From	To	From	To
16"	Larkin & Jackson	Larkin to Francisco	P.H.Regulators	Sunset
12"	Post & Powell	Post & Kearny	University Mound	College Hill
12"	Stockton & Post	Stockton & Sutter		
12"	Larkin & Post	Larkin & O'Farrell		
12"	O'Farrell & Larkin	Jones & Geary		
12"	Leavenworth & O'Farrell	Leavenworth & Geary		
12"	Post & Fillmore	Buchanan & O'Farrell	College Hill	Sunset
16"	Fillmore & Bush	Fillmore & Hayes		
12"	24th St. & Sanchez	24th St. & Dolores		
12"	O'Farrell & Fillmore	O'Farrell & Buchanan		
12"	17th St. & Pond	17th St. & Douglass	Stanford Hts.	Sunset

Size	LOCATION From	To	RESERVOIR From	To
12"	17th St. & Douglass	17th St.& Ashbury		
12"	Douglass & 24th St.	22nd St.& Diamond		
12"	Plymouth & Lobos	Ridgewood & Mangels	Stanford Hts.	Sutro
20"	Lyon & Washington	Ashbury & 17th St.		
16"	Kirkham & 8th Ave.	20th Ave. & Moraga		
20"	20th Ave. & Moraga	Taraval & Dewey		
12"	Octavia & O'Farrell	Octavia & Ellis		College
12"	Ellis & Van Ness	Ellis & Laguna	Sunset	Hill
30"	Sloat & 23rd Ave. (Central Pumps)	Portola & Claremont		
30"	Santa Clara& Portola	Capitol & Sadowa	Sunset	Sutro
12"	Ocean & Faxon	Ocean & Harold		

Several of the proposed feeder mains could not be installed this fiscal year due to the condition of the proposed route, i.e. the 12-inch cast iron feeder main from Oneota and University to Harkness and Goettigen, because the streets are not to grade. The 12-inch cast iron main from O'Shaughnessy and Portola to Mangels and Ridgeway could not be laid due to the proposed reconstruction of O'Shaughnessy Boulevard. When the grading and reconstruction of these streets will be completed is not known.

TRANSMISSION MAINS:

The College Hill transmission main was taken out of service during the latter part of this fiscal year. In the City area the main was cut, and a bumped head was welded to the remaining northerly section at Ottawa and Otega, the water being taken from the cross-town pipe line at Diamond Street and Joost Avenue by the partial opening of a 24-inch gate valve. The amount of water by-passed from the cross-town pipe line (San Andreas) is estimated by means of a gauge established at the inlet to the College Hill Reservoir. It is expected that a Venturi Meter will be installed in the said cross-town pipe line at the southwest corner of the proposed reservoir at Phelan and Ocean Avenues. A permanent cross connection will also be installed between the cross-town and the College Hill pipe line at Diamond Street just north of Joost Avenue.

CITY RESERVOIRS:

A new reservoir has been added to the distribution system inside the City and County of San Francisco, known as Sutro. It is located on Claredon Avenue just east of Lake Honda and is at an elevation of about 500 feet. Its area of supply will be between that of Stanford Heights and Sunset. Whem completely in service it will eliminate the pressure regulators located at Washington and Lyon Streets as well as the one at Fulton and Masonic.

The construction of Summit Reservoir at elevation 800 feet, located on Palo Alto Avenue, just west of Twin Peaks, has been completed. The 16-inch cast iron pipe line between this reservoir and its pump station located at Sutro Reservoir has not been completed due to the incompletion of the subdivision through which it passes. It is hoped that this situation will be eliminated shortly.

PUMPING STATIONS:

As in the previous fiscal year all pumping stations operated without any serious mishaps. Several of the smaller automatic stations experienced electrical troubles, the fuses in the principal incoming control switch burning out. These difficulties are due to a continuous overload in the station, but fortunately the trouble was discovered in time, thus avoiding any water shortage.

The new pumps for the Forest Hill District have not been installed. It is hoped to avoid this expense with the completion of the Summit Reservoir project.

Lake Merced Pump Station has been placed in service on a partial basis. It is now being operated on a two-shift basis, pumping to Sunset Reservoir only. As the Sutro Reservoir district is developed it will relieve the pumping load to Stanford Heights Reservoir to the xtent that the electric pumps at Central Pump Station will be able to furnish sufficient water for the remaining Stanford Heights area. The crews at the Central Pump Station will be transferred to the Lake Merced Pump Station. All additional water required in the Sunset District, as well as in the Sutro District, will then be pumped by the Lake Merced Pumps.

CITY PIPE SYSTEM:

Several cast iron feeder mains, 12-inch and 16-inch in diameter, were laid for the improvement of the system - three in the Sunset District, one for the improvement of the water supply to the Olmstead Pumps and one for the improvement of supply to Potrero Heights Reservoir. In addition several 12-inch cast iron mains were laid for the development of subdivisions.

The normal routine extensions of 4, 6, 8 and 12-inch mains were made during the fiscal year, as shown in Tables in the appendix.

SERVICES AND METERS:

Since 1950 the determination of the proper size of service pipe and house pipe has been based upon the probable maximum demand, taking into consideration the lengths of the various pipe lines and the pressure in the street. Likewise the size of the meter has been based upon the probable maximum usage of water. From this type of determination it has been clearly indicated that many of the older installations were undersized.

The number of domestic services installed during the fiscal year is shown in Table "A":

TABLE "A"

NEW DOMESTIC SERVICES

Size Service	1951-52	1952-53	1953-54	1954-55
3/4"	1542	2125	1971	1811
1"	201	427	628	749
1½"	86	78	119	139
2"	52	40	54	57
3"	15	15	16	16
4"	20	19	13	20
6"	1	3	6	15
8"	1	2	2	11
Total	1918	2709	2809	2818
% of 3/4"	80.5	78.5	70.2	64.3
% of 1"	10.5	15.8	22.3	26.6

Percentage wise, the amount of 3/4-inch services is decreasing while the 1-inch service installations are increasing. It should, also, be noted that the total number of new services installed is on the increase. This is due to two causes: First, to the new building activities within the City, and second, to the necessity of the renewal of old service pipes which, over the many years of service, have become badly encrusted. Most all 3/4-inch service pipe 30 feet and over in length must be renewed with 1-inch pipe when the pressure in the street is 40 pounds per square inch or over, and should be 1½-inches when the pressure is less than 30 pounds per square inch. This applies to the ordinary residence containing one bath. In many cases of the larger residences containing many plumbing fixtures, even the so-called short service pipe of 10 feet must be 1-inch.

In many cases it is found necessary to increase the size of the meter from 5/8 to 3/4 inch and in some cases even to 1-inch. This situation is indicated in Tables "B" and "C".

TABLE "B"

METERS SET

Size Meter	1951-52	1952-53	1953-54	1954-55
5/8"	1562	1523	1392	1405
3/4"	17	40	34	60
1"	130	126	134	137
1½"	77	50	62	69
2"	210	216	226	178
3"	1	2	1	-
4"	-	-	-	-
6"	-	-	2	4
8"	1	2	-	-
Total	1998	1959	1851	1853
% 5/8"	78.2	77.7	75.2	75.8
% 3/4"	1.4	2.0	1.8	3.2
% 1"	6.5	6.4	7.2	7.4
% 1½"	3.8	2.5	3.4	3.7
% 2"	10.5	11.1	12.2	9.6

It is of interest to note that, percentage wise, the number of 5/8-inch meters installed is decreasing, while the 3/4-inch and 1-inch are on the increase.

The number of meters changed during the fiscal year for all causes, but mainly "no goes," is shown in Table "C".

TABLE "C"

METER SET CHANGES

Meter Size	1951-52	1952-53	1953-54	1954-55
5/8"	2837	3935	4152	3631
3/4"	92	119	132	157
1"	91	96	94	102
1½"	73	119	79	77
2"	109	176	121	106
3"	1	-	-	-
4"	-	-	-	-
6"	-	1	-	-
8"	-	2	1	-
Total	3203	4448	4579	4073
% 5/8"	88.7	88.5	90.5	89.1
% 3/4"	2.9	2.7	2.9	3.8
% 1"	2.9	2.2	2.1	2.5

Another table of interest, when considering the water supply situation as a whole, is the one showing the number of meters brought home and not replaced:

TABLE "D"

METERS HOME

Meter Size	1951-52	1952-53	1953-54	1954-55
5/8"	591	450	444	672
3/4"	14	19	18	30
1"	45	44	27	57
1½"	30	16	31	21
2"	83	81	90	83
3"	-	2	1	-
4"	-	5	-	2
6"	-	-	2	3
8"	-	-	-	-
Total	763	617	613	868
% 5/8"	77.3	73.0	72.5	77.4
% 3/4"	1.8	3.1	2.9	3.5
% 1"	5.9	7.1	4.4	6.6

The number of fire sprinkler services installed during the fiscal year is shown in Table No. 18 in the Appendix.

The number of abandoned domestic services for all causes is shown in Table "F":

TABLE "F"

ABANDONED DOMESTIC SERVICES

Size Service	1951-52	1952-53	1953-54	1954-55
3/4"	516	1108	1582	1606
1"	29	45	94	69
1½"	9	10	23	19
2"	-	4	7	5
3"	-	-	1	1
4"	4	1	-	1
6"	2	-	-	-
8"	-	-	-	-
Total	560	1168	1707	1701
% 3/4"	92.8	94.8	92.8	94.4
% 1"	5.2	4.5	5.5	4.1

Table "F" is of interest only in that it indicates an increasing rate of service pipe abandonments. This table should be reviewed in conjunction with Table No. 22 - "Complaints - Poor Supply" in the Appendix. The data in the two tables do not exactly coincide. This is due to the shortage of help, leaving a backlog of service pipe abandonments each succeeding year.

As in the previous year, old meters of many years' service and where the cost of repair is excessive, are being retired.

COMPLAINTS:

A. Consumers

Again, as during last year, the principal complaint from consumers is "poor supply". A careful inspection of these complaints again confirms the work of previous years. They are still due to either the service being choked or the housepiping being too small, or both. A total of 1257 complaints was received. As in the previous year each complaint was carefully inspected and analyzed, and every complainant notified by mail of the results. Of the total of 1257 complaints received, 1124 services have been ordered renewed. Table No. 22 "Complaints - Poor Supply" in the Appendix.

Due to the lack of men and equipment, all of the inadequate services have not been abandoned and renewed. Of the total number of "poor supply" complaints received 691 still remain to be done as at the end of this fiscal year.

With the correction of the service or housepiping, or both, as the case may be, experience has shown that that particular "poor pressure" complaint disappears, as was expected.

B. Meters

Considerable difficulty has been experienced with dirty, unreadable water meter register dials and near the end of the fiscal year a change was made in preparing the meters for installation. Rubber gaskets are being installed between the glass and register; also between the register box and the upper meter casing. In addition to this an acrylic plastic is sprayed on to seal the line between the register glass and box. The register spindles where they protrude through the bottom register plate are secured by closed bushings or a bushing retainer plate.

C. Meter Boxes

About one third of the total number of complaints turned in by the meter readers are concerned with the condition of the area surrounding the meter box as well as the cover of the meter box. Both of these types of complaints concern the general public and may be the cause of accidents, resulting in claims for damages.

A total of seven such claims was filed against the Water Department during the fiscal year, resulting in the anticipated payment of $10,100. In addition to the anticipated money to be spent for damage claims, $39,550 was spent for the repaving of the area around the meter boxes, $2,400 for replaced meter boxes, and $620 for meter box covers. The replacement of meter box covers is done by the forces of the Water Department, the estimated cost of which is $9,250. In other words, a total of approximately $61,920 was spent on "meter box complaints" during the fiscal year.

This type of complaint is not new, but is one of long standing. What can be done and how this type of complaint can be eliminated is being carefully studied.

PERSONNEL:

Due to the continuation of track removal, sewer and street surfacing jobs the shortage of men and equipment was evident, which prevented the completion of much necessary departmental work, but provision for additional help is in the next budget for this work. However, due to the growth of the City, in order to give adequate service to the public, one additional main pipe crew, consisting of a foreman, two caulkers and two laborers should be added to the payroll, as well as two additional gatemen. For the proper utilization of these men additional equipment will be required.

Attention should also be directed to the fact that the General Foremen of Main Pipes and Services and Meters are overworked. It is impossible for either of them to perform their work properly. They must spend most of their time planning their work for each succeeding day and neglect the field inspection, or vice versa. It is therefore suggested that a new position be created, such as Supervising General Foreman, who would be in charge of both of the General Foremen.

It should be noted that three new automatic pump stations will soon be put into service, namely, Lone Mountain, Central and Summit. In addition, two smaller automatic stations are contemplated. At the present time thirteen such stations are in service under the care of one operating engineer. It is therefore suggested that consideration be given to the hiring of one additional operating engineer at this time. This man could also take care of the vacation relief, thereby eliminating the necessity of calling upon the undermanned Machine Shop for assistance, which shop is also short of help.

With the completion of the Lake Merced Pump Station, the Water Department will unquestionably be called upon to landscape the surrounding areas. This will call for at least one gardener. The people living around the University Mound Reservoir are also clamoring for the landscaping of the area around both the old and new reservoirs. This situation will require at least two additional gardeners, or a total of three gardeners.

The Machine Shop is also understaffed. In order to perform the work properly and keep all machines and equipment at the highest efficiency, one machinist and one auto machinist are required.

WATER SALES DIVISION

Gross Sales of water to our customers during the fiscal year 1954-55 totaled $13,446,943. This included $739,565 of water sales to other San Francisco Municipal Departments in lieu of taxes. After deducting $23,473 of allowances and refunds from customers' bills in accordance with our policy of providing allowances for fixture leaks and "blind" leaks, Net Sales amounted to $13,423,470. This is an increase of $605,525 or 4.72% over the previous fiscal year. San Francisco Net Sales were $9,898,-485 or 73.74% of the total. Suburban Net Sales were $3,524,985 or 26.26% of the total. In comparison, 1930 Net Sales were $7,045,094 of which San Francisco Sales were $6,710,816 and Suburban Sales, $334,278. Increases in Net Sales in the 25 years therefore have been more than 90% in total, more than 47% in San Francisco and over 950% in the Suburban area.

Metered registration for the year was 5,675.6 million cubic feet, which is an increase of 352.4 million cubic feet or 6.62%. San Francisco registration was 3,616.3 million cubic feet or 63.72% of the total. Suburban registration was 2,059.3 million cubic feet or 36.28% of the total. These percentages for the previous year were 67.13% for the City and 32.88% for Suburban.

Water delivered to Municipal Utilities and Water Districts in the Suburban Area taking water for resale totaled 1,075.5 million cubic feet. Revenue from this source amounted to $1,828-787, an increase of $379,538. Deliveries to private utilities for resale totaled 869.7 million cubic feet. Revenue was $1,452,-309, an increase of $122,693. Delivery of water through the Palo Alto Pipe Line totaled 210.3 million cubic feet. Revenue amounted to $349,820. Total delivery through the Palo Alto Pipe Line since it was put into service in 1938 has been over three billion cubic feet. Revenue has exceeded $4,000,000.

New service installations ordered for domestic use totaled 1,561, those for automatic sprinkler use totaled 25. The work of our Consumers' Servicemen continued to increase. During the year they made over 29,500 calls which included principally turning on and shutting off of water supply as well as taking meter readings for closing bills. The Special Complaint Inspector, who handles complaints of poor supply, noise, taste, etc., made over 2,400 calls. About half of these calls were for poor supply necessitating surveys of the requirements of the consumers and the removal of the meter for flow test. It was necessary to use a second man on this work for approximately 4½ months during the year to keep up with the work load.

During the year, closing bills were issued on 19,645 accounts. Uncollectible bills amounted to $8,637 which was only 0.06% of Sales. By comparison, uncollectible bills amounted to $29,740 in 1930 being 0.42% of Sales. The Suspense balance, which consists of closed accounts awaiting collection or write-off, was $14,509 at June 30, 1955.

Customers' Accounts Receivable at June 30, 1955 showed a balance due the Department of $880,079. This was a reduction of more than $110,000 from the previous June 30 and was only 64.54% of Sales for the month of June indicating that over one third of our June billing had been paid before the end of the month. Collections for the year totaled $12,792,392, an increase of $764,302 over the previous year. Collections in 1930 amounted to $6,988,655 so that, over the twenty five years there has been an increase of $5,803,737 or 83%. There were 931,451 bills issued during the year of which 876,874 were for bi-monthly accounts and 54,577 for monthly accounts. Of the bills issued only 4.24% had unpaid balances from the previous period at the time of issue.

Following the City Attorney's opinion of July 1, 1952 that water supplied under certain so-called reduced rate and free water contracts was actually subject to our regular rate schedule, suit was filed to nullify the contracts. On August 17, 1954 judgment was rendered in favor of the City and County in the matter of the Antonine Borel contract. The judgment, however, denied the backbilling prior to July 1, 1952 and the "additional" charges paid up to November 6, 1952. This resulted in cancellation of backbilling charges in the amount of $4,472.40 and a refund of the "additional" charges in the amount of $1,194.01.

During 1954-55 billing continued at regular rates on the remaining former "contract" accounts. Billing totaled $665,358.46 which was $47,963.54 in excess of the amount which would have been billed under the former contract rates. In the three years since regular billing began on these accounts, charges at the regular rates, excluding the Borel refund, have been $1,868,097.66 or $162,224.57 over the "contract" rates.

In connection with the City Attorney's opinion noted above and a subsequent ruling, the outstanding backbilling on the "contract" accounts was $103,138.47 at June 30, 1954. Cancellation of backbilling in the Borel matter, $4,472.40, reduced this figure to $98,666.07. Further, in view of the Court's ruling, backbilling to Clyde Henry, who had closed out prior to July 1, 1952, was cancelled. This further reduced the outstanding backbilling by $1,500.19 to the current total of $97,165.88. If the remainder of the suits follow the Borel pattern, this amount will be uncollectible.

Our Claims Division handles claims both for the Department, where street work contractors and others damage our facilities, and against the Department, where injury or damage results from its operations. In addition, all reports by meter readers, inspectors and others, covering dangerous or potentially dangerous conditions of the Department's facilities are routed through and processed by the Claims Division.

Since early in 1953, when the Claims Division began handling claims against others, some 240 claims in the total amount of $30,682.23 have been processed. During the fiscal year 1954-55

we filed 70 claims totaling $9,606.96, collected $6,690.03 on 77 claims, some of which had been brought forward from the previous year, and abandoned 10 claims amounting to $1,374.50 which were found to be not properly chargeable to others. At June 30, 1955, we had on hand 50 claims against others in the total sum of $7,879.55.

Some 311 claims against others, in the total sum of $19,672.19, were on the Department's books at the time the Claims Division took over this work in 1953. These claims dated back into 1944. Two hundred twelve claims in the total amount of $11,704.68 were paid or compromised for $6,781.94. Another 47 claims, totaling $3,429.64, found to be not proper charges, were cancelled. As of June 30, 1955, 52 of these "old" claims, in the sum of $4,537.87, remain. At this point, recovery on these "old" claims has averaged better than 44%.

Claims filed against the Department during the year totaled some 144 in number for a total amount of $176,522.67. This included 25 claims in the total sum of $40,122.81 which were filed for refund of amounts allegedly overbilled or losses allegedly sustained as result of the regulation billing of the former "contract" accounts noted previously in this report. Claims pending at the beginning of the year numbered some 109 in the total amount of $266,330.39. These included, however, only 12 claims totaling $86,211.58 which had been filed as result of the Department's operations. During the year, therefore, the Claims Division processed some 253 claims in the total amount of $442,853.06. Seventeen claims totaling $41,308.79 were denied. Another 90 claims filed for $93,534.59 were settled for $12,988.78. The total saving on claims denied and settled therefore was $121,854.60. One claim filed for $50,000.00 involved an automobile accident and was turned over to our insurance carriers. Claims remaining at June 30,1955 were 145 in number totaling $258,009.68. Of these, 102 claims for $210,680.01 were in connection with water rate contracts so that 43 claims in the sum of $47,329.67 remained as result of the Department's operations.

The Claims Division investigated an additional 239 damage cases on which no formal claims were filed. Also processed and routed for proper handling were 2,862 reports of dangerous or potentially dangerous conditions of the Department's facilities. This phase of the work is of primary importance and follows the old adage that "an ounce of prevention is worth a pound of cure."

Again it should be mentioned that the employees of the Water Sales Division have performed their assignments in such manner as to bring credit to the organization.

WATER PURIFICATION DIVISION

In general 1954-1955 was a normal year in that sanitary protection of watersheds and reservoirs was in force at all times; and waters were continuously disinfected prior to delivery to consumers. The water they received fully complied with United States Public Health Service standards for drinking and culinary water.

A major part of the water supply originates in the mountains and is a soft surface water which is treated for corrosion control. A minor portion is from wells and is relatively hard. The other source, from local watersheds, is intermediate in both quantity and hardness. The mixture delivered to practically all consumers is moderately soft and of relatively low mineral content.

LABORATORY:

All analytical work in the fields of biology, bacteriology and chemistry, except the necessary field tests, was performed in the laboratory, located at Millbrae, which has been certified by the State Department of Public Health as an "Approved Water Laboratory for Complete Chemical and Complete Bacteriological Analyses."

The first table following the body of the report is a summary of the laboratory and field tests and examinations made during the year in connection with sanitary control, water treatment, and special investigations.

Due to increased laboratory work load and changes in Department personnel, complete mineral analyses were run on only the major sources of supply; however, partial chemical analyses on the other supplies show no appreciable change in their mineral content.

In conjunction with the State Department of Public Health Sanitary Engineering Laboratory, chemical and biochemical tests were run to check the procedures and to determine the accuracy of techniques used. Exceptionally good correlation was obtained between this laboratory's results and those of the State.

A number of radioactivity level tests were run on water samples from source reservoirs, and the results were compared with those obtained by the State. Activity was found to be at a low level. New and improved methods and techniques were developed. In this connection, the laboratory built a battery of special concentrating devices which are not obtainable commercially.

Two members of the laboratory staff attended a special fluoride school conducted jointly by the United States Public Health Service and the State Department of Public Health. The purpose was to develop uniform and accurate methods of fluoride analyses.

Sieve analyses were made on copper sulfate and on sodium silicofluoride samples and shipments, in order to check for compliance with specifications.

Special investigations continued to be made for other divisions: soil analyses, extraction tests, pipe lining tests. Corrosion resistant paints were given service tests. Cements, plastics and other compounds which might be used as reservoir patching materials were studied in the laboratory.

Liquids of heavy specific gravity were made and tested for use in manometers.

New and replacement equipment purchased during the year included a magnetic stirring apparatus, an electric grinder, a balance, and some much needed laboratory cabinets.

CHLORINATION:

Disinfection of all supplies was adequate and continuous throughout the year, with no water being exposed to contamination between the point of last chlorination and the consumers' service. Eleven chlorination stations were operated continuously. In addition, Calaveras and Sunset operated for 4.2 months and 10.0 months respectively. Again this year, the Irvington and Merced Manor Stations were not used.

Flows, all treated,in billion gallons were: 38.2 at Tesla, 5.9 at Calaveras, 1.0 at Sunol, 24.7 at Crystal Springs, and 15.2 total at the three San Andreas Stations.

Altogether 939,500 pounds of chlorine were used during the year, a 3.79% decrease from last year's usage. 60.8% of the total was used at the Tesla Station, 10.3% in the Alameda Division, 25.9% in the Peninsula Division and 3.0% in the City Distribution Division. Chlorine dosages averaged 15.0 pounds per million gallons at the Tesla Station, 15.4 pounds per million gallons at the Calaveras Station, 5.8 pounds per million gallons at the Sunol Station, 5.7 pounds per million gallons at the Crystal Springs Station and 6.7 pounds per million gallons at the San Andreas Stations. High chlorine dosages are necessary at the Tesla and Calaveras Stations in order to maintain adequate chlorine residuals throughout the Coast Range Tunnels and Bay Division Lines, and thereby control those organisms entering with tunnel infiltration water.

New equipment purchased in 1954-1955 included a semi-automatic hypochlorinator with accessories; a chlorinator that will automatically, based on the rate of flow, inject chlorine at a rate up to 100 pounds per day; an oxygen-acetylene unit; fire extinguishers; and timing units.

New pipe lines were disinfected before being placed in service as follows:

On the Peninsula:

7400 feet	78-inch pipe line

In the City

130 feet	4-inch pipe line
700 "	6 " " "
975 "	8 " " "
10,760 "	12 " " "
8,840 "	16 " " "
4,950 "	30 " " "

FLUORIDATION:

The fluoridation of approximately fifty percent of the water supplied to San Francisco was continued throughout the year. Adequate safety features are provided to prevent any possible overdosage and operations to date have proved the controles to be effective. There was no overdosage of fluoride to any water served to consumers during the year. Toward the close of the year the Division was well on the way to completion of facilities at Crystal Springs and San Andreas for fluoridating all the rest of the water supplied to San Francisco consumers and parts of the peninsula.

During the past fiscal year a total of 159,050 pounds of sodium silicofluoride (Na_2SiF_6) was used with 80.3 percent injected at the San Andreas No. 2 Station and 19.7 percent injected at the Alemany Station. The average dosage of sodium silicofluoride was 11.16 pounds per million gallons at the San Andreas No. 2 Station and 7.98 pounds per million gallons at the Alemany Station, with an over-all average of 10.36 pounds per million gallons, equal to 0.76 parts per million of available fluoride. This quantity added to the natural fluoride in the water supply gives an average total content of about 0.81 parts per million. The fluoride concentration of the water served does not range over 1.0 part per million.

After the Alemany Pumping Station was put on an inactive status on February 4, 1955 the Alemany Fluoridation Station was shut down, and the equipment was moved to San Andreas No. 1 Pipe Line near the outlet tunnel.

CORROSION CONTROL:

Anticorrosion control of the soft Hetch Hetchy water which was in effect for the entire year is accomplished by the lime treatment plant located at the Rock River Shaft in the Foothill Division tunnels.

A total of 1,490,570 pounds of quixklime (CaO) was used; a 13.2% increase over last year's poundage. The average dosage of the total 38.2 billion gallons flow was 38.8 pounds per million gallons. This maintained a pH of 9.1 throughout the aqueduct from Rock River to the Crystal Springs Reservoir when only Hetch Hetchy water was transported, and has appreciably reduced the corrosiveness of the resultant mixture when other source supplies are used. Results of treatment continue to be favorable and consumer cities along the aqueduct find the water to be much less corrosive to pipe lines with a consequent reduction in necessary flushing of their systems as compared to the time previous to treatment.

ALGAE CONTROL:

A total of 65,700 pounds of copper sulfate was used during the year to control algae activity in the local storage and impounding reservoirs. This is a 93.6 percent increase over the amount used last year, but is 28.2 percent below the past ten year average.

All of the principal reservoirs outside the City were treated. The details of each treatment may be found within the table entitled "Copper Sulfate."

CROSS CONNECTIONS AND INSPECTIONS:

The number of services to consumers having cross connections with other sources of supply on their premises which are protected from backflow by double check valve assemblies continues about the same. During the year 82 installations were inspected for leaks.

Periodic sanitary inspections of watershed areas on a limited scale were made for protective purposes.

WATER QUALITY:

A table headed "1954-55 Data" gives the major characteristics of water served from the Crystal Springs Lines, the San Andreas Lines, and the Bay Crossing Lines. The changes in hardness, pH alkalinity and chlorides of the water served from the Bay Crossing Lines are due primarily to the two principal sources. Usually this water is either Hetch Hetchy, Calaveras, or a mixture of both. Although they are different from one another, the chemical content of each is fairly constant.

All water served to consumers for domestic use complied with the bacteriological standard established by the United States Public Health Service. For the most part objectionable tastes and odors were absent. Harmful elements such as arsenic, lead and hexavalent chromium were either absent or present in trace amounts only. Elements such as copper, iron, zinc, magnesium, sulfate and chloride were well within the safety limits for drinking water. Iodine content was low, but not entirely absent, and boron was present only in low concentrations.

COMPLAINTS:

Dirty water and bad taste continued to be major sources of water quality complaints and only a complete flushing of the system plus filtration of all water and an adequate cleaning program for the open distributing reservoirs - or covering these reservoirs - would minimize them. The fhuoridation rpogram continued to be a minor source of complaints and of discussions both for and against. Many inquiries regarding fluoridation at specific locations are answered by this Division. In line with our courtesy policy, aid was given to our consumer cities in the investigation of water quality complaints.

MISCELLANEOUS:

About 50 percent of one employee's time was spent in the study of methods to control leakagein concrete lined distribution reservoirs. There has, as yet, been no formal report prepared on these studies.

Besides guests from other water districts and agencies, visitors to the laboratory during the fiscal year included four groups from schools, two delegations from the press, and a group from the San Francisco Grand Jury.

The recording flow colorimeter assembly was finally modified and readied for field use, and was installed at the Redwood City valve house. This device makes a permanent record of the turbidity of the water, and shows magnitude and duration of changes from the normal.

This Division continues its policy of sharing with other water departments improved techniques in water disinfection, and newly developed laboratory methods.

TABLES AND CHARTS:

The tables that follow are entitled:

Summary of 1954-1955 Laboratory and Field Examinations and Tests

Operation of Chlorination Stations 1954-1955

1954-1955 Operation of Fluoridation Stations

1954-1955 Copper Sulfate

Water Quality 1954-1955 Data

San Francisco Water Department
Mineral Analyses - Source Supplies

TABLES AND CHARTS: (Cont'd)

San Francisco Water Department
Typical Analyses of Waters Served to Consumers

Monthly Summaries of Bacteriological Analyses -
Samples collected from the San Francisco
Distribution System in Accordance with
Certification Requirements

Bacteriological Analyses -
Annual Summary of Results -
Raw Water - Sources and Reservoirs

Bacteriological Analyses -
Annual Summary of Results
- Treated Waters

The charts included give for the year 1954-1955: Electrical Conductivities of Water Delivered to Consumers, Hardness of Water Delivered to Consumers, Temperature and Dissolved Oxygen of Water Delivered to Consumers, Peninsula Reservoirs - Microscopical Organisms - C.C. per Cu. Meter, and Monthly Chlorine Usage in Water Supply System.

SUMMARY OF 1954-1955 LABORATORY AND FIELD EXAMINATIONS AND TESTS

Bacteriological Examinations	6936
Routine Microscopical Examinations of Algae	401
Electrical Conductivity Measurements	5149
Turbidity Measurements	3689
Partial Chemical Analyses	817
Routine Fluoride Tests	899
Color Measurements	832
Dissolved Oxygen Tests	639
Analyses to Determine Origin of Leaks	368
Complaint Investigations	41
Irrigation Water Analyses	48
Complete Mineral Analyses	9
Chlorine Residual Tests	5044
Miscellaneous Field Tests	2496
Miscellaneous Laboratory Tests Not Otherwise Included	500

OPERATION OF CHLORINATION STATIONS

1954-55

Location		Total Operating Time (months)	Chlorine Used (lbs.)	
Division	Station		Station Total	Division Total
Coast Range H.H.W.S.	Tesla	12.0	571,752	571,752
Alameda	Calaveras	4.2	91,178	
	Sunol Aqueduct	12.0	5,800	
	Irvington	0.0	0	96,978
Peninsula	Crystal Springs	12.0	141,538	
	San Andres #1	12.0	12,092	
	San Andres #2	12.0	73,906	
	San Andres #3	12.0	15,456	242,992
City Distribution	College Hill	12.0	7,396	
	Lombard	12.0	450	
	University Md.			
	Line #1	12.0	5,346	
	Line #2	12.0	9,610	
	Sunset	10.0	4,895	
	Francisco	12.0	81	
	Merced Manor	0.0	0	27,778
			Total	939,500

1954-1955

OPERATION OF FLUORIDATION STATIONS

STATION	Months Operated	Fluoride Used (lbs.)	Flow (m.g.)	Fluoride Added		Total Fluoride F ppm
				Na_2SiF_6 lbs./m.g.	F ppm.	
San Andres #2	12.0	127,825 80.3%	11,452.5	11.16	0.82	0.87
Alemany	7.2	31,225 19.7%	3,913.4	7.98	0.58	0.63
	Total	159,050	15,365.9	10.36	0.76	0.81

Alemany Station shut down 2-4-55 due to Alemany Pumping Station being put on inactive status.

1954-1955

COPPER SULFATE

RESERVOIR	DATE	AMOUNT $CuSO_4$ (lbs.)	STORAGE * (mg)	REASON FOR TREATMENT
Calaveras	3-11-55	24,200	20,700	Asterionella, Synedra and Zygnema
U.C.S.	10-18-54	10,250	6,600	Aphanizomenon
L.C.S.	10-18-54	12,350	10,300	Aphanizomenon
San Andres	9-21-54 12-27-54	8,450 8,050	5,702 5,149	Anabaena Asterionella
Pilarcitos	10-25-54 4-7-55	1,350 950	680 398	Staurastrum Staurastrum, Dictyosphaerium, Mougeotia and Asterionella
Stone Dam	10-25-54 4-7-55	50 50	8 8	Mallomonas Mallomonas, Staurastrum and Dictyosphaerium
	Total	65,700	49.55 Billion gallons treated	

65,700
33,950 $\frac{31,750 \times 100}{33,950}$ = 93.6% increase over previous year.
31,750

91,550
65,700 $\frac{25,850 \times 100}{91,550}$ = 28.2% below the previous 10-year average.
25,850

*Storage at time of treatment

WATER QUALITY

1954-1955 Data

CRYSTAL SPRINGS LINES

Hardness	Max. 46	Min. 29	Av. 39.2 ppm. (2.29 gpg) (grains per gal.)
pH	Max. 7.8	Min. 7.4	Av. 7.49
Alkalinity	Max. 47	Min. 27	Av. 36.6 ppm.
Chlorides	Max. 7	Min. 3	Av. 4.4 ppm.
Turbidities	Max. 2.5	Min. 0.5	Av. 0.8 ppm.
Temperatures	Max. 68	Min. 49	Av. 58.6° F.
Dissolved Oxygen	Max. 10.8	Min. 8.4	Av. 9.5 ppm. (93% Saturation)

SAN ANDRES LINES

Hardness	Max. 55	Min. 44	Av. 49.0 ppm. (2.86 gpg)
pH	Max. 7.9	Min. 7.2	Av. 7.49
Alkalinity	Max. 46	Min. 38	Av. 41.9 ppm.
Chlorides	Max. 9	Min. 4	Av. 7.2 ppm.
Turbidities	Max. 2.0	Min. 0.5	Av. 0.9 ppm.
Temperatures	Max. 67	Min. 48	Av. 57.5° F.
Dissolved Oxygen	Max. 11.2	Min. 8.8	Av. 10.3 ppm. (98% Saturation)

BAY CROSSING LINES

Hardness	Max. 52	Min. 13	Av. 26.1 ppm. (1.53 gpg)
pH	Max. 9.5	Min. 7.8	Av. 8.80
Alkalinity	Max. 54	Min. 12	Av. 25.9 ppm.
Chlorides	Max. 6	Min. 1	Av. 2.2 ppm.
Turbidities	Max. 2.5	Min. 0.5	Av. 0.9 ppm.
Temperatures	Max. 62	Min. 46	Av. 54.3° F.
Dissolved Oxygen	Max. 12.4	Min. 7.6	Av. 9.8 ppm. (92% Saturation)

SAN FRANCISCO WATER DEPARTMENT

MINERAL ANALYSES - SOURCE SUPPLIES

(Results expressed in parts per million, except pH and conductivity. Conductivity expressed in reciprocal ohms x 10^5)

SOURCE	Hetch-Hetchy at Alameda East Portal	Calaveras Reservoir	Sunol Aqueduct	Pleasanton Wells	Pilarcitos Reservoir
Conductivity (K x 10^5)	5.4	25.4	53.8	67.1	18.2
pH	9.2	8.3	7.6	7.6	7.9
Total Solids (Calculated)	34	144	331	404	104
Silica (SiO_2) (Colorimetric)	5.0	3.6	12.0	16.0	11.0
Sodium (Na)	5.1	10.8	27.1	32.3	14.1
Calcium (Ca)	5.5	31.4	62.9	66.4	16.2
Magnesium (Mg)	0.5	8.6	19.2	34.1	4.8
Iron, Dissolved (Fe)	0	0.02	0.02	0.02	0.04
Aluminum (Al)	0.02	0	0	0	0
Manganese (Mn)	0	0	0	0	0
Boron (B)	0.12	0.09	0.21	0.18	0.07
Fluoride (F)	0.15	0.15	0.05	0.05	0.05
Carbonate (CO_3)	1.8	0	0	0	0
Bicarbonate (HCO_3)	15.9	130	238	326	66
Sulphate (SO_4)	3.6	21.4	66.0	56.9	8.8
Chloride (Cl)	4	4	21	26	17
Nitrate (NO_3)	0.01	0.01	5.5	12.8	0.01
Hardness Calculated ($CaCO_3$)	16	114	236	306	60
Alkalinity ($CaCO_3$)	17	106	195	267	54

Exact analyses of runoff into Crystal Springs and San Andres Reservoirs cannot be made as water from many sources in use mixes in these reservoirs.

SAN FRANCISCO WATER DEPARTMENT

TYPICAL ANALYSES OF WATERS SERVED TO CONSUMERS

(Results expressed in parts per million, except pH and conductivity. Conductivity expressed in reciprocal ohms x 10^5)

SOURCE	Crystal Springs Lines	San Andres Lines	Bay Crossing Lines *	Stone Dam Reservoir
Conductivity (K x 10^5)	10.4	13.2	10.7	28.6
pH	7.7	7.7	8.3	7.9
Total Solids (Calculated)	58	72	66	166
Silica (SiO_2) (Colorimetric)	4.6	5.4	6.1	13.4
Sodium (Na)	6.1	7.7	6.7	17.2
Calcium (Ca)	11.4	13.1	12.5	30.6
Magnesium (Mg)	2.8	4.2	3.1	8.7
Iron, Dissolved (Fe)	0.02	0.02	0	0.08
Aluminum (Al)	0	0	0.02	0
Manganese (Mn)	0	0	0	0
Boron (B)	0.06	0.08	0.11	0.14
Fluoride (F)	0.05	0.95	0.15	0.10
Carbonate (CO_3)	0	0	1.2	0
Bicarbonate (HCO_3)	47	54	46	120
Sulphate (SO_4)	7.3	8.0	7.9	14.6
Chloride (Cl)	4	8	4	23
Nitrate (NO_3)	0.01	0.01	0.01	0.01
Hardness, Calculated ($CaCO_3$)	40	50	44	112
Alkalinity ($CaCO_3$)	38	44	38	98

Column 1 Supplies downtown, commercial, waterfront areas of the City and Peninsula communities as far south as San Carlos.
Column 2 Supplies residential areas of the City.
Column 3 Supplies Peninsula communities south of San Carlos and some communities in Alameda County. (*Average analyses of water served; water may range from Hetch Hetchy only to Calaveras only.)
Column 4 Supplies Coast County Water District.

MONTHLY SUMMARIES OF BACTERIOLOGICAL ANALYSES

SAMPLES COLLECTED FROM THE SAN FRANCISCO DISTRIBUTION SYSTEM

IN ACCORDANCE WITH CERTIFICATION REQUIREMENTS

Month	Number of Samples	Coliform Tests				
		Samples Positive (3 or More Tubes)		10 ml Tubes or Portions		
		Number Positive	Per Cent Positive	Number of Tubes	Tubes Positive	Per Cent Positive
1954						
July	364	1	0.27	1820	9	0.49
August	364	2	0.55	1820	16	0.88
September	382	5	1.31	1910	29	1.52
October	348	2	0.57	1740	22	1.26
November	379	0	0	1895	5	0.26
December	387	3	0.77	1935	22	1.14
1955						
January	379	0	0	1895	1	0.05
February	344	0	0	1720	4	0.23
March	395	0	0	1975	5	0.25
April	344	0	0	1720	4	0.23
May	382	0	0	1910	5	0.26
June	383	1	0.26	1915	8	0.42

BACTERIOLOGICAL ANALYSES

ANNUAL SUMMARY OF RESULTS

RAW WATERS - SOURCES AND RESERVOIRS*

Origin of Sample	Agar Count No. per ml			Coliform Group 10 ml Portions			Samples		
	Min.	Max.	Av.	No. Exam.	No. Pos.	% Pos. Yr.	No. Exam.	No.** Pos.	% Pos. Yr.
Moccasin Reservoir	1	7300	2250	255	154	60.4	51	30	58.8
Tesla Portal	1	132	10	245	15	6.1	49	2	4.1
Calaveras Reservoir	1	270	88	350	58	16.6	70	10	70.0
Sunol Filters	1	290	9	260	88	33.8	52	12	23.1
Pleasanton Wells	1	130	16	115	30	26.1	23	4	17.4
Upper Crystal Spr. Res.	1	170	12	250	57	22.8	50	9	18.0
Lower Crystal Spr. Res.	1	500	77	510	112	22.0	102	18	17.6
San Andres Reservoir	1	1400	40	520	293	56.3	104	57	54.8
Pilarcitos Line	1	230	19	255	61	23.9	51	9	17.6
Stone Dam Reservoir	1	500	37	255	159	62.4	51	34	66.6
Lombard Reservoir	1	400	10	525	184	35.0	105	31	29.5
Univ. Mound Res. No. 1	1	250	8	525	188	35.8	105	31	29.5
Univ. Mound Res. No. 2	1	5	2	525	0	0	105	0	0
Sunset Reservoir	1	35	2	525	12	2.3	105	2	1.9
College Hill Reservoir	1	750	32	525	167	31.8	105	34	32.4
Lake Honda Reservoir**	1	56	8	130	37	28.4	26	8	30.8
Lake Merced N.	1	280	49	130	101	77.7	26	19	73.1
Lake Merced S.***	1	1200	88	130	108	83.1	26	20	76.9
Lake Merced Pump Sta.	2	5000	375	130	125	96.2	26	25	96.2
				M. P. N.					
				Min.	Max.	Av.			
Laguna Creek	1	9000	1549	38	24000	12100	47	47	100
Alameda Creek	1	5000	443	38	24000	4100	40	40	100
San Antonio Creek	3	1000	141	15	24000	3000	22	22	100

* - Includes all distribution reservoirs with chlorination facilities operating at the outlet.

** - Standby purpose only.

*** - Emergency standby source.

‡ - Number of samples having 3 or more tubes positive

M.P.N. - Most probable number per 100 ml.

BACTERIOLOGICAL ANALYSES

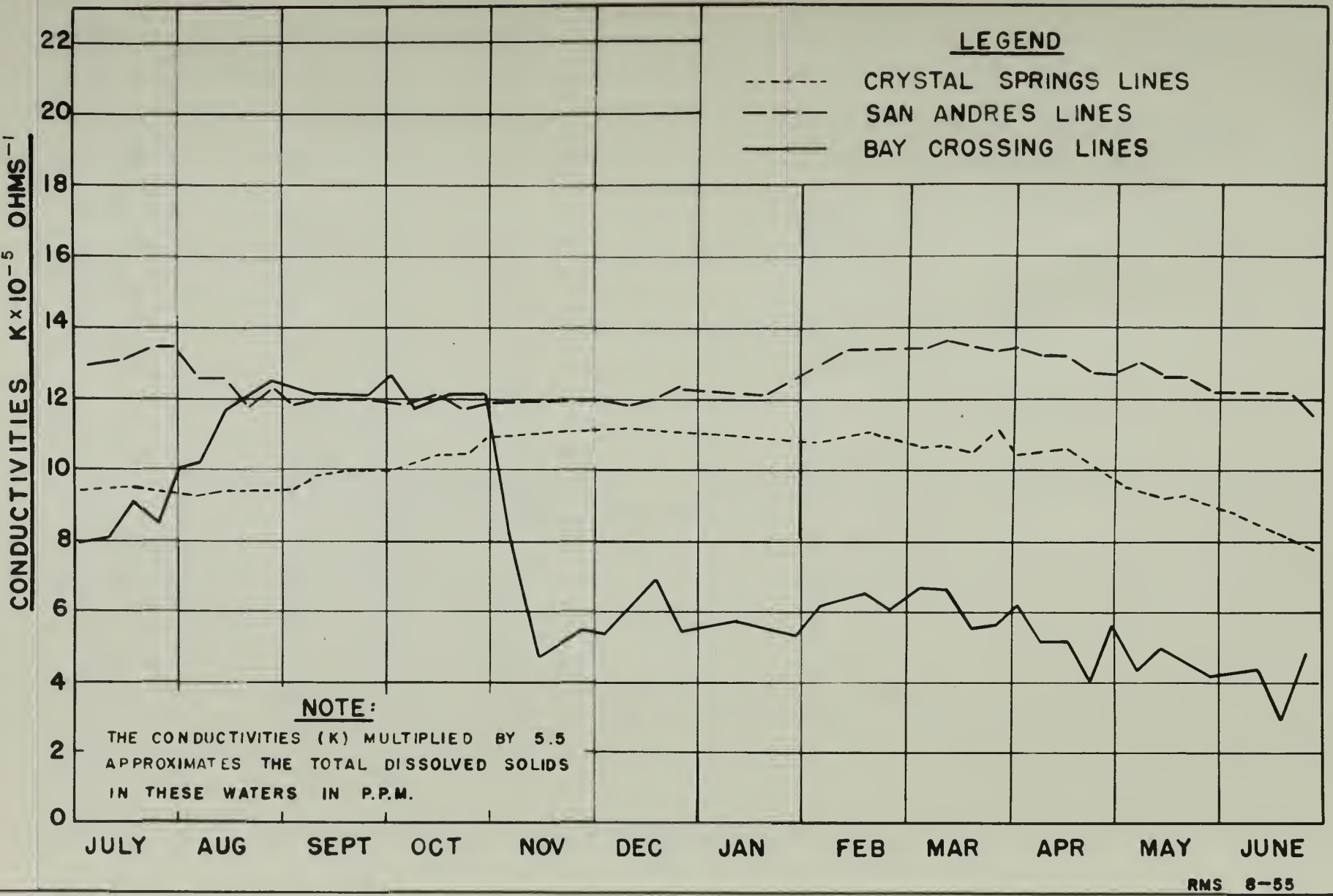
ANNUAL SUMMARY OF RESULTS

TREATED WATERS

Origin of Sample	Agar Count No. per ml			Coliform Group 10 ml Portions			Samples		
	Min.	Max.	Av.	No. Exam.	No. Pos.	% Pos. Yr.	No. Exam.	No. Pos. *	% Pos. Yr.
Alameda East Portal	1	19	2	260	1	0.38	52	0	0
Calaveras Pipe Line	1	270	17	110	0	0	22	0	0
Sunol Aqueduct	1	50	3	260	1	0.38	52	0	0
Irvington Pump Station									
Sunol Town Supply	1	500	8	520	8	1.54	104	0	0
Bay Crossing Lines	1	19	2	1070	3	0.28	214	0	0
Palo Alto Pipe Line	1	72	3	770	4	0.52	154	0	0
Alameda Line, Belmont	1	20	2	520	0	0	104	0	0
San Francisco Airport	1	5	2	525	1	0.19	105	0	0
Crystal Springs Line #1	1	480	2	1565	3	0.19	313	0	0
Crystal Springs Line #2	1	16	2	1565	2	0.13	313	0	0
San Andres Line #1	1	10	2	1535	0	0	307	0	0
San Andres Line #2	1	12	2	1565	3	0.19	313	0	0
San Andres Line #3	1	4	1	520	5	0.96	104	1	0.96
Univ. Mound Inlet #1	1	10	2	520	8	1.54	104	1	0.96
Univ. Mound Inlet #2	1	5	2	525	0	0	105	0	0
Univ. Mound Outlet #1	1	3	1	525	0	0	105	0	0
Univ. Mound Outlet #2	1	7	2	525	3	0.57	105	1	0.95
Univ. Mound System #1	1	4	1	525	0	0	105	0	0
Univ. Mound System #2	1	5	2	525	4	0.76	105	1	0.95
Univ. Md. System #3	1	5	2	525	7	1.33	105	1	0.95
Univ. Md. System #4	1	3	1	515	0	0	103	0	0
Univ. Md. System #5	1	5	2	525	5	0.95	105	1	0.95
Univ. Md. System #6	1	9	2	500	5	1.00	100	1	1.00
Francisco Outlet	1	9	2	525	0	0	105	0	0
College Hill Trans. System	1	9	2	515	6	1.16	103	1	0.97
College Hill Outlet	1	17	2	520	0	0	104	0	0
College Hill System #1	1	5	1	525	2	0.38	105	0	0
College Hill System #2	1	6	1	525	2	0.38	105	0	0
Sunset Transmission System	1	5	1	525	0	0	105	0	0
Sunset Inlet	1	8	2	510	2	0.39	102	0	0
Sunset Outlet	1	5	1	525	1	0.19	105	0	0
Sunset System #1	1	15	2	525	1	0.19	105	0	0
Sunset System #2	1	7	1	525	3	0.57	105	1	0.95
Forest Hill System	1	5	1	525	5	0.95	105	1	0.95
Potrero Hts. System	1	300	8	525	25	4.76	105	2	1.90
Lombard System	1	3	1	525	3	0.57	105	0	0
Merced Manor Reservoir	1	5	1	525	1	0.19	105	0	0
Merced Manor System	1	4	1	525	0	0	105	0	0
Stanford Heights Reservoir	1	9	1	525	9	1.71	105	1	0.95
Stanford Heights System #1	1	12	1	520	6	1.15	104	1	0.96
Stanford Heights System #2	1	32	2	505	10	1.98	101	0	0
Sutro Reservoir	1	8	1	530	10	1.89	106	0	0
Wilde Avenue System	1	4000	7	525	5	0.95	105	1	0.95

*Number of samples having 3 or more tubes positive.

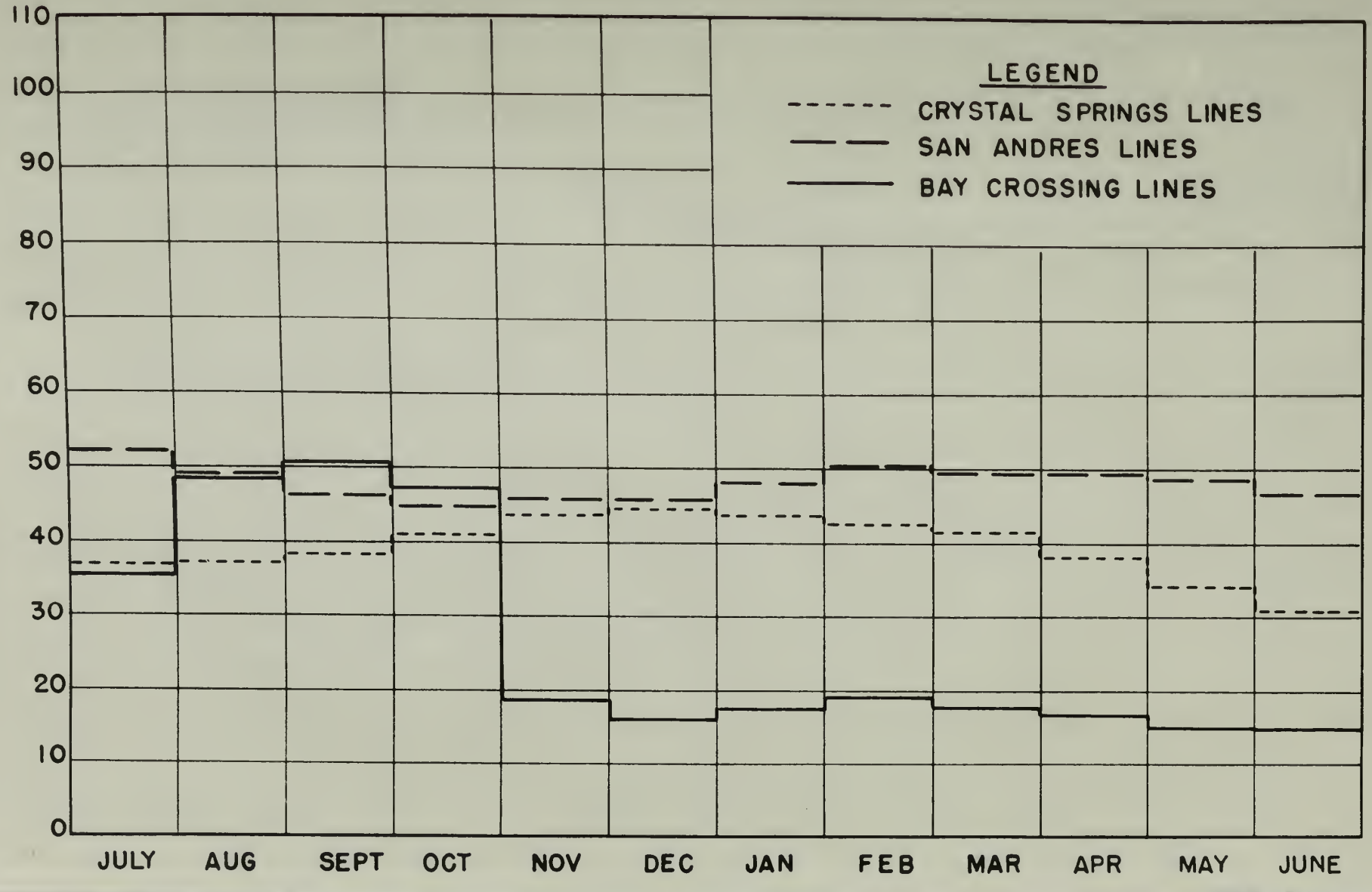
ELECTRICAL CONDUCTIVITIES OF WATER DELIVERED TO CONSUMERS
1954–1955



RMS 8-55

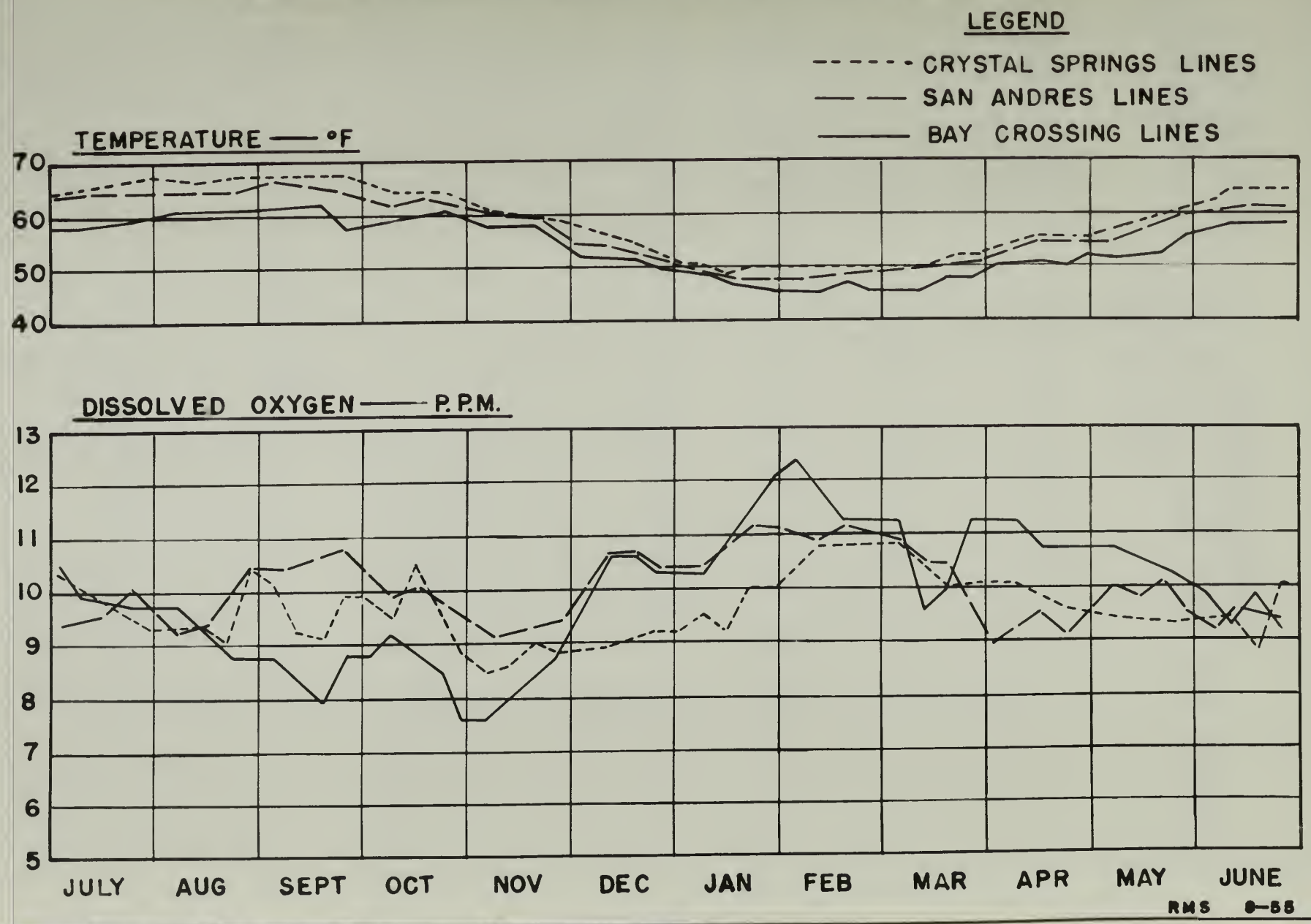
HARDNESS OF WATER DELIVERED TO CONSUMERS 1954—1955

(MONTHLY AVERAGES—PARTS PER MILLION AS $CACO_3$)



RMS 8-55

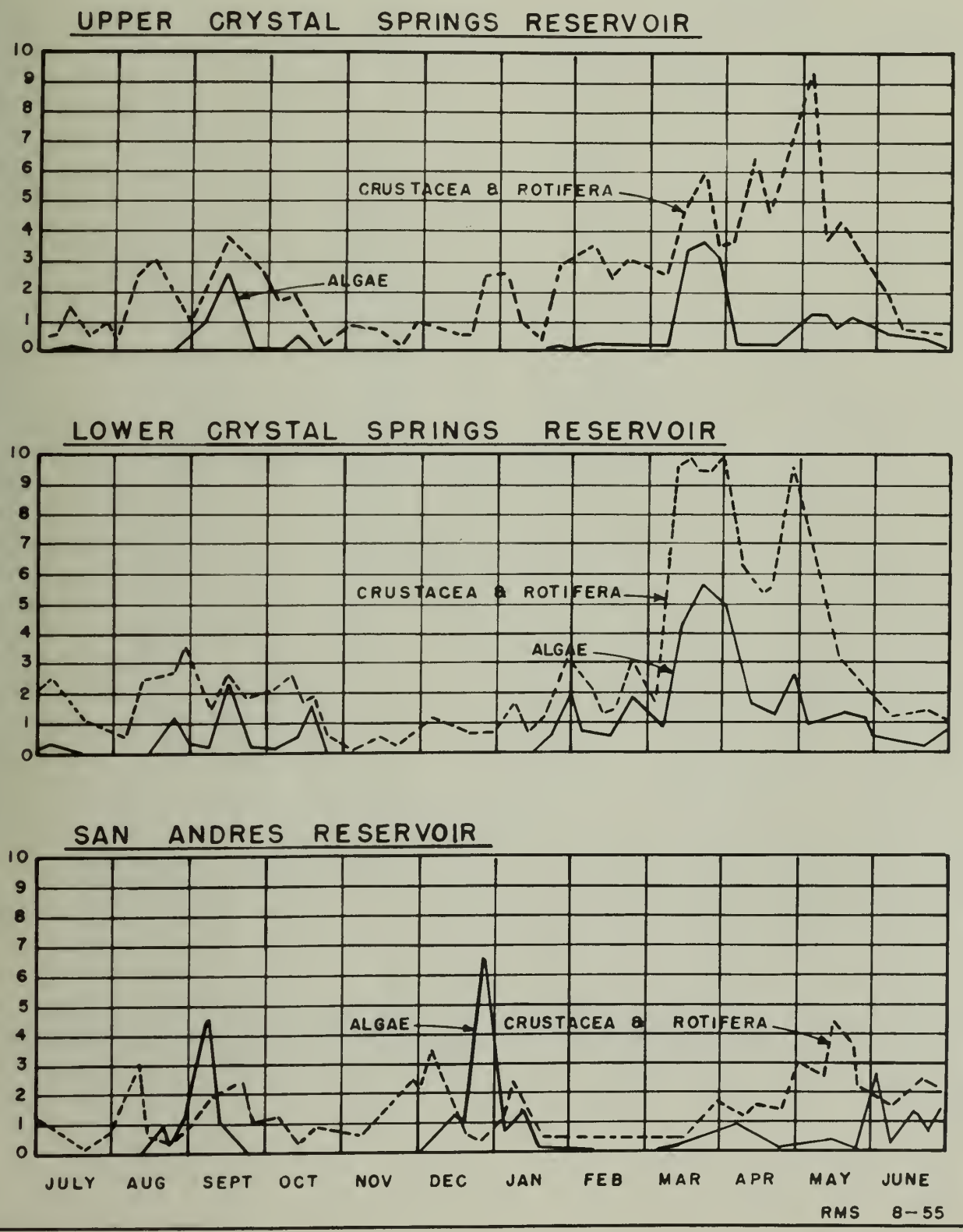
TEMPERATURE AND DISSOLVED OXYGEN OF WATER DELIVERED TO CONSUMERS 1954—1955



PENINSULA RESERVOIRS

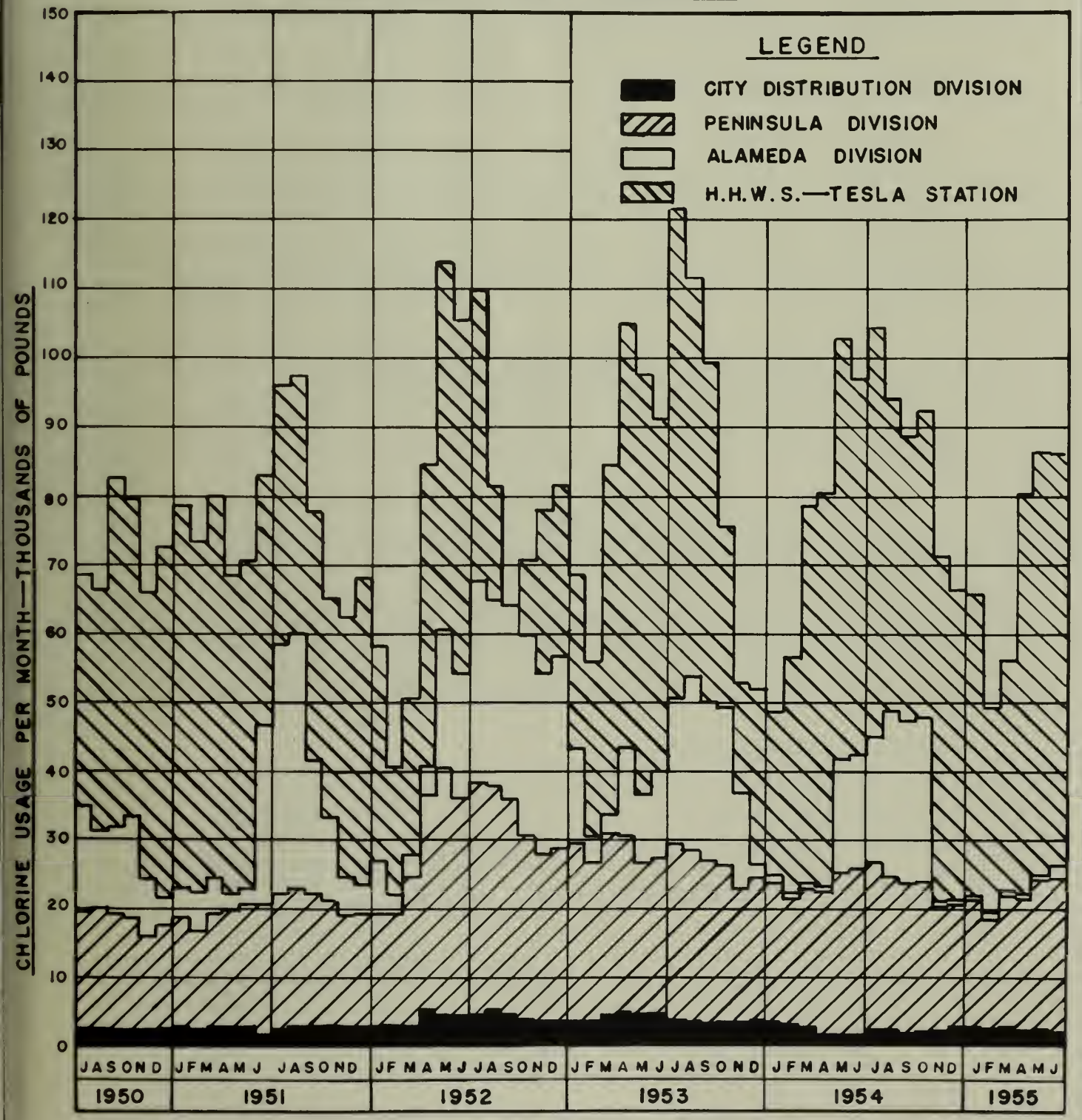
MICROSCOPICAL ORGANISMS C.C. PER CU. METER

1954—1955



MONTHLY CHLORINE USAGE IN WATER SUPPLY SYSTEM

(PAST FIVE YEAR COMPARISON)



RMS 8-55

ENGINEERING DIVISION

The work of the Engineering Division during the past year was primarily concerned with the preparation of plans, specifications, engineering studies, reports, estimates of cost, inspection of construction and, in some cases, the supervision of maintenance work. Various other services of a continuing nature were performed during the year including the preparation of property descriptions, revocable permits and the stating of conditions for land transactions; the maintenance of maps and records and the furnishing of photostatic and photographic service to all city owned utilities.

Plans and specifications were prepared for 33 formal and 13 informal Water Department contracts for a total estimated construction cost of $1,300,000. Engineering supervision and inspection services were provided for $1,250,000 worth of contract work actually completed during the year. Of the 33 formal contracts for which plans and specifications were prepared during the fiscal year 1954-55, 20 were for water main extensions.

Two of these extensions were awarded to the Water Department in an amount totaling $21,421.00. One was completed during the year at a cost of $2,889.51 or $1,673.09 less than the bid price. The other extension was 98% complete on June 30.

A survey of proposed capital improvements to the water system was made, in connection with budgetary and city planning purposes, for the period beginning July 1, 1956 and ending June 30, 1962. Water Department requirements for this period were estimated at some $38,500,000 worth of improvements having varying degrees of urgency. A number of the more essential projects programmed to start in that time and for which funds are needed in whole or in part include the following projects:

Project	Total Estimated Cost July 1, 1956 to June 30, 1962
Balboa Reservoir - One Basin	$ 2,800,000.00
Corporation Yard	1,800,000.00
Portions of Crystal Springs Pipe Line No. 3	6,880,000.00
Crystal Springs Aqueduct	1,500,000.00
San Andreas Pumps	350,000.00
Sunset Reservoir - So. Basin	3,650,000.00
Bay Division Pipeline No. 4	15,000,000.00
San Antonio Dam and Appurtenances	5,000,000.00

Cement mortar lining of Calaveras 44-inch pipeline was completed near the end of the year. This pipe was salvaged from the Newark-San Lorenzo pipe line and relaid in its present location in 1934. It was originally installed between San Lorenzo Pump Station and the Bay Crossing pipes at Newark in 1931 to provide water during an emergency period. Lining of this pipe will lengthen its effective life and increase its carrying capacity approximately 18%. A valved manifold by-pass was installed at the main line valve near the 69-inch Alameda Siphon. This will permit better control over flows of less than 30 million gallons per day.

Work was started on the relocation of Crystal Springs Pipelines No. 1 and 2 around Guadalupe Marsh near Brisbane. The 60-inch Pipeline No. 2 is being laid first and will be placed in service as soon as possible. This line is being constructed with new pipe. On completion of this pipe line, the old 60-inch pipe will be removed, reconditioned as needed, and relaid in the new location to be used as a part of pipeline No. 1.

Construction of the 78-inch pipeline between Crystal Springs Dam and Hillsborough Bridge was completed and the line put into operation. Plans for the 90-inch Hillsborough tunnel, a part of the same transmission line, are 75% complete as of June 30, 1955. The balance of the 78-inch pipe line to be used as Sunset Pipe Line and Crystal Springs Pipeline No. 3 is scheduled for a completion date to coincide with that of the tunnel.

San Andreas Branch of the Sunset Pipeline should be completed and ready for operation about October 1, 1955.

Roofing and lining of Summit Reservoir were completed April 29, 1955. Feeder main construction has been held in abeyance until subdivision street grades have been established. Completion of this reservoir adds 14.0 million gallons to the 302.4 million gallon capacity of distributing reservoirs in the City of San Francisco. This does not include Lake Honda and Lake Merced with 2,544.0 million gallons capacity in the two. These latter two are for emergency supply only.

Plans were started for the southern section of Sunset Reservoir. It is anticipated that excavation work will begin in January 1956 and be completed by the end of that year.

The second stage of diking the Department's right of way at Ravenswood has been completed. The third and last stage will be started about September 1, 1955. This dike will prevent the higher tides from washing onto Bay Division Pipe Lines No. 1 and 2, eliminating that cause of excessive corrosion.

Fluoride plants at Crystal Springs and San Andreas Reservoirs are nearing completion at the end of this fiscal year. They should be in operation about July 15, 1955. These plants, together with the original plant at San Andreas, will provide capacity to treat all water drawn from those two reservoirs.

Several improvements were made at the Department's Main Office at 425 Mason Street. The lighting, painting, rearrangement of partitions and replacement of some of the large windows and blocking in of the others, has made the lobby and work areas on the first floor a place to be proud of. Customers and employees alike have reacted very favorably to this improvement. The second floor vault was removed and replaced with efficient, fire resistant cabinets placed where their records are more readily available. Painting of this floor and rearrangement of desks and files produces a very efficient work area as well as increasing the number of employees who can be accommodated on that floor. The overloaded main electrical feeder line, together with the inadequate main switch board, were replaced.

ELECTROLYSIS:

At the beginning of the previous fiscal year the electrolysis survey of the pipe lines in the City Distribution Division, as well as the Peninsula Division, was placed under the supervision of the Superintendent of the City Distribution Division.

The surveys made during this fiscal year resulted in the following:

1. In the area east of the Pulgas Tunnel there are three pipe lines - 60-inch, 66-inch and 72-inch respectively. The 60-inch and 66-inch pipe lines are riveted and welded steel, while the 72-inch is steel cylinder cement-lined and coated, with rubber ring bell and spigot joints, except in a few instances, where a welded joint was used. The 60-inch pipe line is badly pitted on the outside surface due to soil electrolysis. To overcome this condition a counter current must be created or the pipe line must be completely insulated. Before an effective cathodic station can be installed it will be necessary to bond across all of the bell joints on the 72-inch pipe line in that area.

2. Special bonding of the various structures belonging to utilities other than the Water Department in the Newark area was done in order to establish the required electrical protection. This unbalancing of the electric field was due to the cathodic station installed in that area by the Water Department some time ago.

3. A cathodic station was installed in the Vera Creek area in Redwood City west of El Camino Real for the protection of the transmission main in that location.

4. In the Hetch Hetchy right of way east of Bayshore Highway insulated joints were installed between the two transmission mains in order to overcome the existing galvanic couple.

5. In the Geneva and Bayshore Highway area, as well as in South San Francisco, electrical difficulties exist between the gas transmission main belonging to the Pacific Gas & Electric Company and the 60-inch Crystal Springs pipe line. While the P. G. & E. have two cathodic stations in that area, tests indicated that they are not the source of the difficulty but are simply due to the galvanic couple created by the two pipe lines. It is attempted to overcome this difficulty by the insulation of a gas service which is taken off the gas transmission main. The work is being done by the P. G. & E. As soon as their work is completed further tests will be made by us to determine its effectiveness.

6. The Navy is installing seven cathodic stations in the Hunters Point area. As soon as this work is completed tests will be made by us in order to ascertain their effectiveness.

A brief description of work performed under contract during the fiscal year follows:

FORMAL CONTRACTS:

1. Additions to City Pipe System:

In all contracts involving the laying of cast iron or transite pipe or the installation of services, the Contractor is required to obtain the pipe and fittings from the Water Department. The cost of this material, of connections made by the Department's forces, and of engineering and inspection are included in the following stated contract costs. In cases where the Water Department acts as the Contractor, the cost given is the actual cost of the completed work.

Extensions and replacements to the Department's distribution grid system are made under contract, the Department furnishing all necessary pipe, fittings and services material. The value of these items, and the engineering and inspection costs are set up in the contract bid sheets in a manner so that the "bid total" includes the cost of furnished items, engineering and inspection, and the summation represents the total cost to the Department for the facility. On most of this class of work the Water Department submits a bid and does the work if its bid is the lowest of those received.

Contract No. 668 - For the laying of 2,286 feet of 30-inch steel main in 20th Avenue from Kirkham Street to Golden Gate Park. The contract was awarded to M & K Corporation on March 29, 1954 and was completed on July 22, 1954 at the cost of $54,965.69.

Contract No. 682 - For the installation of 24 services and the laying of 64 feet of 4-inch, 417 feet of 6-inch and 482 feet of 8-inch cast iron mains in Putnam Street between Jarboe and Thompkins Avenue and in Freeway Access Road between Vermont and Kansas Streets. The contract was awarded to Fred T. Fairey on May 24, 1954 and completed on July 15,1954 at the cost of $6,889.24

Contract No. 683 - For the laying of 41 feet of 2-inch, 29 feet of 3-inch, 152 feet of 4-inch, 648 feet of 6-inch, and 1,167 feet of 8-inch cast iron mains in Potrero Annex Housing Project. The contract was awarded to Fred T. Fairey on June 14, 1954 and completed on July 29, 1954 at the cost of $11,924.69.

Contract No. 691 - For the installation of 53 services and the laying of 1,270 feet of 4-inch, 93 feet of 6-inch, 553 feet of 8-inch and 358 feet of 12-inch cast iron mains in Seventh Avenue, Arguello Blvd. and in De Montfort Street (Sutro Project). The contract was awarded to Fred T. Fairey on October 4, 1954 and completed on December 10, 1954 at the cost of $19,793.88.

Contract No. 692 - For the laying of 3,701 feet of 16-inch cast iron pipe mains in Moraga Street and in Quintara Street from 28th to 34th Avenues. The contract was awarded to Associated Pipeline, Incorporated on August 23, 1954 and completed on October 15, 1954 at the cost of $51,121.87.

Contract No. 693 - For the laying of 4,151 feet of 12-inch cast iron main in 18th Avenue between Fulton and California Streets. The contract was awarded to Lowrie Paving Company on October 4, 1954 and completed on February 2, 1955 at the cost of $38,826.07.

Contract No. 694 - For the laying of 5,187 feet of 16-inch cast iron main from 26th and Shotwell to 23rd and Vermont Streets. The contract was awarded to Fred T. Fairey on February 28, 1955 and completed on May 23, 1955 at the cost of $71,765.36.

Contract No. 695 - For the laying of 720 feet of 8-inch cast iron mains in Jerrold Avenue between Phelps and Quint Streets. The contract was awarded to Associated Pipeline, Incorporated on August 23, 1954 and completed on October 5, 1954 at the cost of $4,719.31.

Contract No. 697 - For the installation of 20 services and the laying of 521 feet of 6-inch and 290 feet of 8-inch cast iron mains in Flint and 16th Streets and in Quintara Street between 24th and 25th Avenues. The contract was awarded to Fred T. Fairey on August 30, 1954 and completed on December 21, 1954 at the cost of $4,971.35.

Contract No. 701 - For the laying of 252 feet of 8-inch cast iron main in Apparel Way east of Barneveld Ave. The contract was awarded to Fred T. Fairey on October 11, 1954 and completed on December 21, 1954 at the cost of $3,142.41.

Contract No. 703 - For the laying of 274 feet of 4-inch, 640 feet of 6-inch, 18 feet of 8-inch and 1325 feet of 12-inch cast iron mains in Cambridge Street from Felton to Wayland Streets and in Bacon Street from Cambridge to Harvard Streets. The contract was awarded to Associated Pipeline, Incorporated on November 8, 1954 and completed on December 27, 1954 at a cost of $13,142.95.

Contract No. 706 - For the installation of 2 servies and the laying of 46 feet of 4-inch and 1,461 feet of 8-inch cast iron main in Alemany Housing Project. The contract was awarded to E. J. Treacy on November 22, 1954 at an estimated bid price of $8,151.50. As of June 30, 1955 work on this contract had not been started.

Contract No. 709 - For the laying of 2,289 feet of 12-inch cast iron main in Clayton Street and Parnassus Avenue between Ashbury and Stanyan Streets (Sutro Project). The contract was awarded to Michael Murphy, Jr. on January 3, 1955 and completed on April 6, 1955 at the cost of $19,254.14.

Contract No. 710 - For the installation of 13 services and the laying of 410 feet of 6-inch and 400 feet of 8-inch cast iron mains in Griffith Street and Fitzgerald Avenue and in Harvard Street between Bacon and Burrows Streets. The contract was awarded to Fred T. Fairey on February 21, 1955 at an estimated bid price of $4,846.85. As of June 30, 1955 no work has been started on this contract.

Contract No. 711 - For the installation of 63 services and the laying of 550 feet of 6-inch, 1,170 feet of 8-inch cast iron main in Leland Avenue between Delta and Bayshore Boulevard. The contract was awarded to the San Francisco Water Department on April 27, 1955 at an estimated bid price of $16,858.40. On June 30, 1955 the contract work was 98% complete.

Contract No. 712 - For the installation of 112 services and the laying of 2,300 feet of 6-inch, 3,700 feet of 8-inch, 950 feet of 12-inch and 1,150 feet of 16-inch cast iron mains in portions of Midtown Terrace Subdivisions Nos. 3 and 4. The contract was awarded to Fred T. Fairey on March 14, 1955 at an estimated bid price of $46,761.15. On June 30, 1955 the contract work was 95% completed.

Contract No. 713 - For the laying of 1,450 feet of 12-inch cast iron mains in Oxford and Felton Streets between Silver Avenue and Cambridge Street. The contract was awarded to Michael Murphy, Jr. on May 16, 1955 at an estimated bid price of $16,331.00. On June 30, 1955 the work was 72% complete.

Contract No. 714 - For the installation of 24 services and the laying of 1,250 feet of 6-inch cast iron mains in Chestnut Street between Fillmore and Laguna Streets. The contract was awarded to H. T. Tracey on March 7, 1955 at a bid price of $7,349.50. As of June 30, 1955 the work had not been started.

Contract No. 715 - For the installation of 20 services and the laying of 1,050 feet of 8-inch cast iron mains in Ingalls Street from Fitzgerald Avenue to Egbert Avenue and in Schwerin Street south of Sunnydale Avenue. The contract was awarded to Michael Murphy Jr. on May 9, 1955 at an estimated bid price of $10,535.05 and on June 30, 1955 the work had not been started.

Contract No. 721 - For the installation of 17 services and the laying of 320 feet of 6-inch and 480 feet of 8-inch cast iron mains in Oakdale Avenue between Quint and Phelps Streets and in Missouri Street between Sierra and 22nd Streets. The contract was awarded to Michael Murphy Jr. on May 9, 1955 at an estimated bid price of $6,412.70. On June 30, 1955 the work had not been started.

Contract No. 722 - For the installation of 19 services and the laying of 220 feet of 4-inch and 530 feet of 6-inch cast iron mains in Wildwood Way and Homewood Court. The contract was awarded to the San Francisco Water Department on May 31, 1955 and completed on June 22, 1955 at a cost of $2,889.51.

Contract No. 724 - For the installation of 8 services and the laying of 400 feet of 6-inch and 850 feet of 8-inch cast iron mains in 25th Street between Iowa and Tennessee Streets and in Stanley and Bright Streets. The contract was awarded to Michael Murphy Jr. on June 13, 1955 at an estimated bid price of $8,693.90. As of June 30, 1955 the work had not been started.

Contract No. 725 - For the installation of 72 services and the laying of 1,171 feet of 6-inch cast iron main in 43rd Avenue between Judah and Lawton Streets. The contract was awarded to Associated Pipe Line, Inc. on June 13, 1955 at an estimated bid price of $11,263.10. On June 30, 1955 the work had not been started.

2. Additions to Supply and Transmission Facilities:

Contract No. 666 - For the replacing of a part of the Crystal Springs 44-inch pipeline with 7,430 feet of 78-inch and 79-inch pipe to also serve as a part of the Sunset Supply 60-inch pipeline from Crystal Springs Dam to near Hillsborough Bridge. The contract was awarded to McGuire and Hester on March 15, 1954 and completed on December 28, 1954 at the cost of $561,812.20.

Contract No. 672 - For the replacing of that part of Crystal Springs Pipelines No. 1 and No. 2 on trestles across Guadalupe marsh near Brisbane with two 60-inch pipelines laid in the ground around the marsh. The contract was awarded to M. & K. Corpn. on April 11, 1955 at an estimated bid price of $398,387.48. The contract work was 24% completed on June 30, 1955.

Contract No. 680 - For the construction of the 60-inch Sunset Supply Pipeline - San Andreas Branch. The contract was awarded to McGuire and Hester on February 21, 1955 at an estimated bid price of $313,310. The contract work was 49% completed on June 30, 1955.

3. Miscellaneous Contracts:

Contract No. 539-R - For the construction of Caretaker's Cottage near Crystal Springs Dam. The contract was awarded to J. Q. Adams Company on September 2, 1954 and was completed on January 24, 1955 at the cost of $15,129.40.

Contract No. 660 - For the construction of Summit Pumping Station. The contract was awarded to C. J. Collins Company on May 3, 1954 and completed on September 22, 1954 at the cost of $33,159.76.

Contract No. 664 - For the construction of Summit Reservoir. The contract was awarded to Monson Brothers on September 21, 1953 and completed on April 29, 1955 at the cost of $525,424.77

Contract No. 671 - For replacing trestle bents under the Niles - Irvington Pipeline. The contract was awarded to Chas. S. Moore on June 14, 1954 and completed on September 10, 1954 at the cost of $18,628.53.

Contract No. 673 - For the diking of Bay Division Pipeline right of way at Ravenswood. The contract was awarded to Associated Dredging Company on June 1, 1954 at an estimated bid price of $15,937.00. On June 30, 1955 the contract work was 81% completed.

Contract No. 684 - For the construction of San Francisco College for Women Pumping Station. The contract was awarded to Associated Pipe Line, Inc. on April 18, 1955 and completed on June 29, 1955 at the cost of $12,189.45.

Contract No. 685 - Alterations on the first, mezzanine, second and third floors in the Department's building at 425 Mason Street, San Francisco. The contract was awarded to Wm. McIntosh & Son on June 1, 1954 and completed on August 31, 1954 at the cost of $7,669.19.

Contract No. 686 - For Exploratory Drilling for proposed Tunnel-Hillsborough Section of Crystal Springs and Sunset Supply Pipelines. The contract was awarded to Processed Diamond Bit and Tool Company on July 6, 1954 and completed on October 27, 1954 at the cost of $5,992.20.

Contract No. 687 - For the repavement of street and side walk openings made by the Department for installation or repair work during the fiscal year 1954-55. The contract was awarded to the Pacific Pavements Company on June 7, 1954 and terminated on June 30, 1955 at a cost of $101,684.79. Pavement over trenches opened by other contractors performing work for the Department is not included under this annual paving contract, as they are required to provide their own repaving.

Contract No. 688 - Electrical Alterations in the Department's building at 425 Mason Street, San Francisco. The work was awarded to Roth Electricians on September 13, 1954 and completed on November 30, 1954 at the cost of $4,395.00.

Contract No. 689 - For the installation of luminous ceiling lighting for the First Floor in the Department's building at 425 Mason Street, San Francisco. The contract was awarded to Scott-Buttner Electric Company on September 20, 1954 and completed on November 11, 1954 at the cost of $6,179.00.

Contract No. 690 - For the painting of the first, mezzanine and second floors of the Department's building at 425 Mason Street, San Francisco. The contract was awarded to the New Method Painting and Decorating Company on June 14, 1954 and completed on December 10, 1954 at the cost of $2,975.00.

Contract No. 698 - For the gathering and delivery of walnut crop from the orchard at Sunol. The contract was awarded to John Helzer on August 30, 1954 and completed on November 24, 1954 at the cost of $7,320.43.

Contract No. 699 - For repairs to wood roof over Crystal Springs Aqueduct canal. The contract was awarded to C. J. Collins on September 20, 1954 and completed on November 12, 1954 at the cost of $4,557.54.

Contract No. 700 - For repairing and replacing windows in the Department's building at 425 Mason Street, San Francisco. The contract was awarded to Roy Madsen on September 20, 1954 and completed on December 10, 1954 at the cost of $10,814.00.

Contract No. 702 - For alterations on the 4th floor of the Department's building at 425 Mason Street, San Francisco. The contract was awarded to Antone Petersen and Sons on October 25, 1954 and completed on January 5, 1955 at the cost of $5,590.00.

Contract No. 705 - For reconditioning Calaveras Pipeline by lining with cement mortar. The contract was awarded to Pipe Linings, Inc. on February 28, 1955 and completed on June 28, 1955 at the cost of $152,386.60.

Contract No. 707 - For the construction and equipping of fluoride treatment plants at San Andreas Outlet No. 1 and at Crystal Springs Dam. The contract was awarded to C. J. Collins on February 7, 1955 at an estimated bid price of $33,081.60. On June 30, 1955 the work was 93% complete.

Contract No. 708 - For reconditioning a portion of the 30-inch steel pipeline from Santa Clara Avenue and Portola Drive to Fairfield Way and Ocean Avenue. The contract was awarded to Pipe Linings, Inc. on January 3, 1955 and completed on February 28, 1955 at a cost of $22,547.54.

4. Informal Contracts:

The following work involving amounts of less than $2,000 each contract, was done under a service order issued after posting a bid invitation and receiving informal bids.

Informal Bid No. I-111 - For removing portion of the Belmont Standpipe. Service order was issued to G. W. Thomas Drayage and Rigging Co., Inc. and work was completed at a cost of $1,145.00.

Informal Bid No. I-112 - For furnishing and installing Slimline lights on sixth floor in the Department's building at 425 Mason Street, San Francisco. Order for service or work was issued to the Republic Electric Company under date of August 11, 1954. The work was completed at the cost of $777.00.

Informal Bid No. I-113 - For furnishing and installing one Slimline light in Room 300 at 425 Mason Street, San Francisco. Order for service or work was issued to Republic Electric Company who completed the work at a cost of $148.00.

Informal Bid No. I-114 - For repaving sidewalk area on west side of Van Ness Avenue south of Pacific Avenue, San Francisco. An order for service or work was issued to Phoenix Simpton Company and completed at the cost of $162.18.

Informal Bid No. I-115 - For clearing site of old Clubhouse at Crystal Springs Golf Course, San Mateo County. An order for service or work was issued to John Alfred Furrer and completed at the cost of $645.00.

Informal Bid No. I-116 - Repairing and reroofing Crystal Springs Pump Station Building at Crystal Springs Road and Skyline Boulevard, San Mateo County. Order for service or work was issued to Bishop Supply Company who completed the contract at the cost of $1,082.00.

Informal Bid No. I-117 - For the cutting and disposing of two Eucalyptus trees on the Department's property at Teddy Avenue and Rutland Street, San Francisco. Order for service or work was issued to Davey Tree Surgery who completed the work at a cost of $94.00.

Informal Bid No. I-118 - For repairing sidewalk area on east side of Castro Street between Alvarado and 22nd Streets, San Francisco. An order for service or work was issued to D. O'Connor & Sons, Inc. and the work was completed at the cost of $202.50.

Informal Bid No. I-119 - For furnishing and installing Slimline lights in Fifth Floor Library at 425 Mason Street, San Francisco. A work order was issued to Emil J. Weber Electric Company who completed the work at the cost of $425.00.

Informal Bid No. I-120 - For paving portions of sidewalk area on north side of Quintara Street between 24th and 28th Avenues, San Francisco. An order for work was issued to Love and Haun who completed the contract at the cost of $288.00.

Informal Bid No. I-121 - For remodeling Rooms 704, 705, 706 and 707 of the Department's building at 425 Mason Street, San Francisco. An order for work was issued to C. J. Collins Company who completed the work at the cost of $1,164.00.

Informal Bid No. I-122 - For the paving of sidewalk area and resetting of granite curbs at Steiner and Green Streets, San Francisco. An order for work was issued to L. Sartorio who completed the contract at the cost of $479.74.

Informal Bid No. I-123 - For the furnishing and installing of Protective Window Grilles on the Department's Valve House on El Camino Real in Redwood City and Lake Merced Pump Station on the shore of Lake Merced near Stanley Drive, San Francisco. An order for work was issued to the New Mission Wire and Iron Works and the work was completed at the cost of $622.00.

AGRICULTURAL DIVISION

On July 1, 1955 the area owned in fee was 63,184.796 acres which was 137.104 acres less than shown in the annual report of June 30, 1954. This decrease is as follows:

PURCHASES:	Acres	Acres
Land for Bay Division Pipe Line #3		14.788
SALES:		
Parcel No. 9 Daly City	.234	
San Mateo County Lands	130.917	
Bay Division Pipe Line	.377	
Parcel No. 37	2.26	
38	.704	
San Mateo County Lands	17.4	
	151.892	14.788
NET DECREASE IN ACRES:		137.104

LEASED ACREAGE:

Kind of Leases	Acres	No. of Leases	Income
AGRICULTURAL:			
Cattle and Dairy	24,265	11	$ 99,550.22
Share Crop	2,142	9	11,798.86
Flat Rate	8,725	45	31,106.77
Specialty	240	3	16,835.00
NON-AGRICULTURAL:			
Flat Rate	183	67	16,755.08
ROYALTIES:			
Crystal Springs Golf Course	173	1	13,604.62
Skyline Materials Rock Quarry	30	1	30,540.87
Lowrie Rock Quarry	19	1	38,500.55
E.A. Forde Rock Quarry	50	1	1,749.94
San Antonio Gravel Co.			5,250.06
Taxes Paid by Tenants			4,375.65
	35,827	139	$270,067.62
WALNUT ORCHARD:			
Sale of Walnuts	90	-	50,004.74
" " " (new orchard)	40	-	-
	39,957	139	$320,072.36

GENERAL:

The policy of examing all leases and re-evaluating them, which was begun on October 1, 1951, has continued with success and with a substantial increase in revenues.

The Departments' annual income through the Agricultural Division at the start of this program totaled $207,633.59. With the close of the fiscal year June 30, 1955, the income had risen to the total of $328,124.86. This represents an increase of $120,491.27 in a period of 3½ years. Net income is $264,720.26. This increase can be attributed principally to the renegotiation of a large number of cattle leases at a time prior to the drop in the price of beef, thereby maintaining a higher income. A number of unprofitable share crop leases were renegotiated on a cash basis, in many cases doubling and even tripling the previous rent, and the addition of new areas heretofore unleased together with general revision of commercial leases.

The walnut orchard maintained a substantial income with a good crop, and good revenues were received from the two rock quarries and the Crystal Springs Golf Course.

It is anticipated an additional 50 acres of walnuts will be planted in the winter of 1956 on land formerly producing strawberries. This will increase the total walnut acreage to 190 acres. Of these, the original 100 acres are still bearing heavily while the new 40 acres,now 6 years of age, has begun to bear a light commercial crop.

A new 12-year lease was approved by the Public Utilities Commission covering the Crystal Springs Golf Course. The lease provides that the Lessee construct a Clubhouse at a minimum cost of $45,000. The consideration for this construction was a reduced percentage on the gross income to be paid the Department. In spite of this reduction and because of increased volume from sales within the new clubhouse, the City's annual return is expected to be greater than the present $13,000.

The policy of transforming small leases into Revocable Permits continued and the consolidation of small adjacent leases into one larger lease also reduced the number of leases.

Non-agricultural work of this Division has been steadily increasing. This includes Public Relations work with the various communities in which the Water Department operates and handling of non-agricultural Flat Rate leases and permits for use of the Department's property. In addition the administration of the City's Airport Agricultural Lease covering 572 acres of hayland is under this Division. This lease brought in a revenue of about $3,000 for the year. These activities account for about a half of the work of the Division.

Improvements were made to the Sunol walnut dehydrator and the sprinkling system for the orchard. All application of water for irrigation of the orchard is now made through the sprinkling system, saving labor and time.

The gross income from cash rentals of leased property has shown a steady climb despite losses of income due to sale of surplus properties which had been under lease.

CATTLE LEASES:

A change has been made on several of the cattle leases whose rentals were based on a sliding scale depending on the price of beef cattle. Because of the drop in prices several years ago and in order to stabilize the fluctuation that occurs each year, a number of those leases were renegotiated to a higher cash rental basis.

The land ranges from poor to good for grazing purposes. A large portion, however, is steep, brushy and some, inaccessible. Inasmuch as its primary use is for watershed purposes, income derived through leasing means additional revenues to the Water Department.

The Division is continuing the program of encouraging the Tenants to develop new dams, springs, controlled grazing, new roads, fences and improved land management as well as to qualify under the County Conservation programs. The following facilities exist at this time and tell their own story of the results of this program.

1. New earth dams and reservoirs constructed - (capacity ranges from 100,000 gal. to 2,200,000 gal., average per dam is 1,000,000 gal.)	19
2. Springs developed	48
3. New permanent troughs and cattle watering locations	41
4. Miles of new roads	12
5. Miles of fences repaired and built	21
6. Miles of fire guards	11
7. Acres under controlled grazing	6500

Most of the new roads were built into previously inaccessible areas. By piping from the new dams to the watering troughs, large areas heretofore ungrazed, were developed.

Controlled grazing means permitting range grasses to reseed themselves by means of periodically holding off grazing.

SHARE CROPS:

Principal crops raised were oats, barley, wheat, alfalfa hay and barley and wheat grain.

The policy of storing the City's share of the better quality hay in the City's Sunol barn at Harvest time when prices are generally low and selling during January, when prices are generally higher, resulted in a larger income, averaging from $7.00 to $10.00 per ton more.

SPECIALTY CASH CROPS:

Specialty Crops included 250 acres of roses, 400 acres of pole string beans, 3 strawberry leases totaling 120 acres and a Government experimental plot of 30 acres that has developed several new types of range grasses.

Part of the 500 acre rose lease in Pleasanton was sublet for raising pole beans. This year the total in beans was over 250 acres. By next year the entire acreage will be in beans. It is planned to convert this land into strawberry culture upon expiration of the lease, thereby greatly increasing the renenue therefrom.

About 7000 poles to the acre are used by the tenant, meaning that over 1,750,000 poles are used to raise pole beans at Pleasanton and another 150 acres of beans at Sunol required over one million poles. This makes an attractive picture but a laborious job on the part of the tenant. Pole beans are grown for the "freezers", the plant itself being a legume, returns much nitrogen to the soil when plowed under after the crop is harvested.

NON-AGRICULTURAL LEASES:

This category includes the Crystal Springs Golf Course which, on a percentage basis returned about $13,000 to the City during this year. Two rock quarries on a royalty basis yielded over $68,000 in revenue and there are various commercial leases for picnic grounds, lumber yards, nurseries, restaurant and other commercial types of business. A third gravel quarry near Sunol was leased during the year.

The Lowrie rock quarry near Millbrae has shown a decided drop in revenue due to a slackening of operations by the lessee.

Eleven billboard leases yielded $1,092.00 for the year while about 45 income producing Revocable Permits yielded over $10,000.

WALNUT CROP:

The 1954 harvest totaled 99 tons which was somewhat higher than the previous year's 76 1/3 tons. Crop was of high quality and production was considerably above the State average which was a light crop; sizes, however, ran somewhat smaller.

Improvements in the dehydrator building by means of installing a "bulk" process handling system and other improvements resulted in a reduction on the harvesting cost from $113.29 per ton in 1952 to $97.50 per ton in 1953, to $74.00 per ton in 1954 for a saving of $39.29 per ton in 2 years.

Bulk delivery eliminates the sacking and sack handling of the crop except for the Mayettes which, because of their thin shells, must be handled in sacks.

The City holds membership in the Walnut Growers' Association at Walnut Creek where the nuts are delivered after the hulling and drying is done at the City's dehydrator at Sunol.

The sprinkler system was increased to cover all of the orchard, insuring an adequate supply of moisture.

A good cover crop of vetch, timely spraying during the winter and summer, dusting for aphid control together with a thorough job of cultivation constituted the major operations.

Sludge from the City's sewage treatment plant in San Francisco was spread over the orchard for the third year in place of the high priced fertilizer previously used. The much needed beneficial bacteria and soil conditioner effects of the sludge greatly assisted the walnut trees. This was reflected in a decided greenness of the leaves, new growth and increased production. These results were secured at a great savings in fertilizer costs.

The new forty acre walnut orchard made a decided growth and early varieties are expected to produce their first commercial crop next harvest. The trees were permanently "shaped" and wooden "supports" and "arms" were installed to protect them from wind damage and other causes. Morning Glory continued as a serious pest in the orchard.

A new 7 year lease was approved on the 50 acres formerly in strawberries and adjacent to the Mayettes. The tenant will supply approved walnut trees, plant and care for them during the life of his lease. The City will have saved a part of the $15,000 necessary to plant this new additional orchard, supplying only the supervision, and at the end of 7 years will have a new 50 acre orchard ready for production. The tenant will raise pole beans between the rows of trees during the term of the lease and pay a small cash rental.

REVOCABLE PERMITS:

Over 500 Revocable Permits in addition to the regular leases are under the supervision of this Division covering right of way and other properties in four counties. Some of these permits produce a nominal revenue while most are non-commercial and relieve the Water Department of the expense of upkeep and maintenance. Income is derived from 45 of these permits totaling about $10,000. The remainder are used for non-commercial and garden purposes. Included in this category is a permit "to gather teasel heads", a noxious weed used by florists for decorative purposes, but a nuisance on the watershed. A fee of $200.00 is paid for this "privilege".

CARE OF PROPERTY:

Every precaution has been taken to see that tenants and all activities on the land do not interfere with watershed operations.

Weed control, sanitary measures and rodent control, cooperation with the various Departments of Agriculture, Health Boards and the University of California in various experiments, control work and program has been beneficially carried on.

FENCES:

The two miles of fence repaired and/or built was a joint project--the tenant doing the work and the City furnishing the material.

A substantial saving was made by buying a quantity of posts and pickets direct from the lumber mill when the price was comparatively low.

A standard cattle fence consists of 220 posts, 450 pickets and 13 spools of barbed wire per mile. Posts are spaced 24 feet with 2 pickets in between with 4 wires.

MISCELLANEOUS:

The Water Department is a member of the California Farm Bureau. This is of great assistance to the Division in securing proper tenants for the various types of agricultural lease.

It is expected that approximately $500 will be received from the United States Department of Agriculture covering conservation practices performed by the Division in conformity with the County Conservation program.

The beans raised at Sunol have attracted unusual attention because of good growth and high production.

Hundreds of distinguished visitors have stopped to see the Sunol walnut orchard. Visitors from Eastern states, students from nearby colleges interested in production and marketing of crops and agricultural officials far and wide have acclaimed the "model" San Francisco Water Department walnut orchard.

The work of this Division has continued to increase, particularly in the field of the non-agricultural leases.

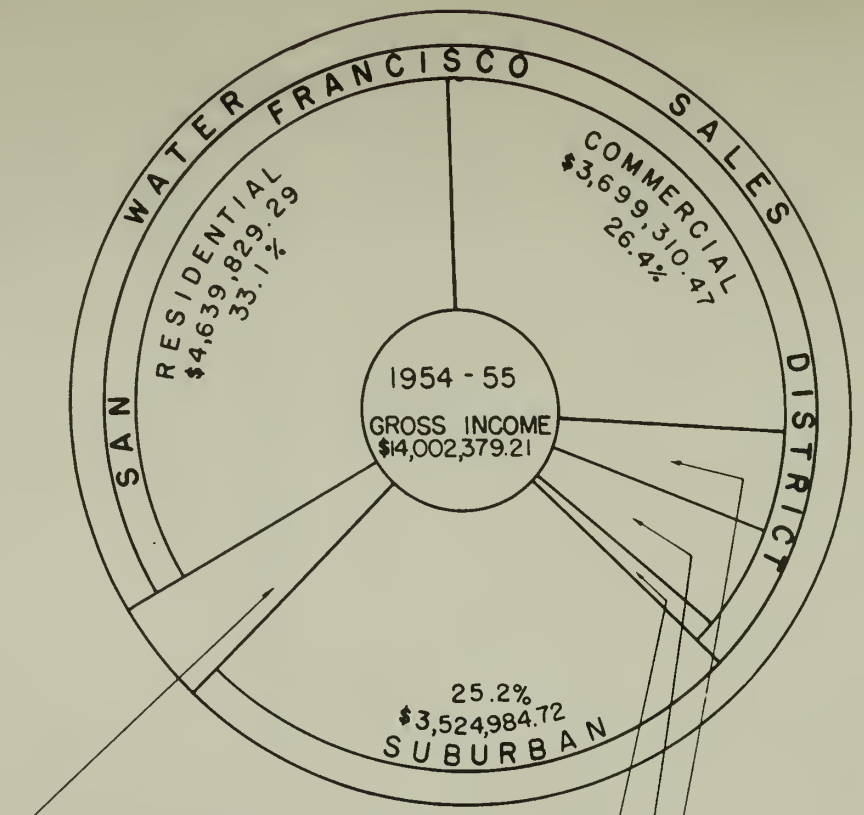
The personnel of this Division consists of the Agricultural Superintendent, his Assistant, Secretary, one working foreman, two laborers and one farmer. Additional seasonal help is sometimes required for various operations.

WALNUT CROP AND VALUE DURING CITY OWNERSHIP

	Total Yield Pounds	Gross Value	Net Cash Received	Association Charges % of Gross *	Packing House Charges per lb.
1930	110,361.	$23,905.44	$20,024.55	16.23	$ .0138
1931	91,570.	13,778.73	12,272.73	10.93	.0091
1932	206,795.	28,994.25	20,391.18	29.67	.0070
1933	153,080.	23,635.21	17,905.45	24.24	.0073
1934	136,672.	18,039.52	13,236.00	26.63	.0059
1935	209,095.	27,359.11	22,719.87	16.96	.0045
1936	187,605.	27,865.13	24,947.57	10.47	.0046
1937	179,954.	23,808.71	21,102.05	11.37	.0042
1938	258,934.	36,812.05	31,801.16	13.61	.0090
1939	153,770.	12,747.35	11,366.74	10.83	.0124
1940	90,148.	13,570.25	11,671.08	14.00	.0100
1941	239,062.	37,182.09	29,807.07	19.83	.0088
1942	254,594.	45,744.85	44,000.73	3.81	.0068
1943	188,590.	49,552.64	48,373.84	2.38	.0082
1944	107,831.	29,487.66	26,901.72	8.77	.0138
1945	214,919.	62,893.03	58,474.64	7.03	.0126
**1946	240,883.	73,017.57	73,017.57	0	0
**1947	81,167.	16,700.11	16,700.11	0	0
**1948	196,529.	39,896.52	39,896.52	0	0
**1949	153,434.	25,546.71	25,546.71	0	0
1950	135,377.	31,879.62	26,983.69	15.36	.0361
1951	184,497.	50,394.52	41,728.69	17.19	.0470
1952	232,716.	67,279.72	50,687.67	24.66	.0713
1953	152,766.	47,826.07	36,410.41	23.87	.0747
1954	197,848.	50,004.74	35,796.44	28.41	.0718
Prior Years Adjust		3,431.54	3,431.54		
	4,358,197.	881,553.14	765,395.73		

*Includes cost of surplus control, operating reserve and revolving fund in addition to actual Association charges for marketing expense.

**Sold under competitive bids.

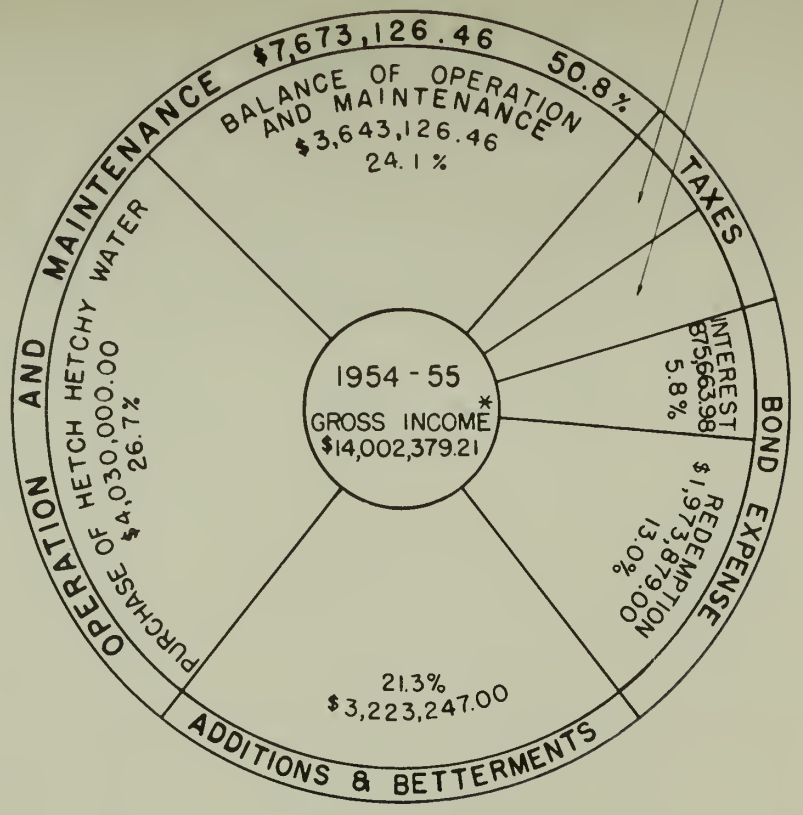


MISCELLANEOUS	$578,908.99	4.2%
OTHER	$143,200.88	1.0%
NON - PAY MUNICIPAL	$739,564.57	5.3%
INDUSTRIAL	$676,580.29	4.8%

SOURCE OF INCOME
FISCAL YEAR ENDING JUNE 30, 1955

FREE WATER TO CITY DEPT'S $739,564.57 4.9%

ACTUAL $636,174.37 4.2%



Note:–
Expenditures Exceed the Gross Income by $1,119,276.17

DISPOSITION OF GROSS INCOME
FISCAL YEAR ENDING JUNE 30, 1955

ACCOUNTING AND AUDITING

The accounts of the San Francisco Water Department are maintained strictly in accordance with the requirements of the State Public Utilities Commission and Section 64 of the Charter, and the accounts of the Department have been so coordinated with the Controller's system that no encumbrance or expenditure against budget estimates can be incurred without prior certification from the Controller that funds are available. As provided in Ordiance 9.0621, an annual audit of the Department is made as of June 30, by a firm of certified public accountants. The accountant's report is not available at the time the Department's financial statement goes to press, hence there may be minor differences between the two reports due to reclassifications made by the accountants.

Comments on Financial Statements:

An analysis of the disposition of Earned Surplus, together with additions thereto and deductions therefrom is shown in the body of these comments.

The following financial statements and cost reports are presented:

Balance Sheet June 30, 1955 (Exhibit A).

Income Statement for the years ending June 30, 1954 and June 30, 1955 (Exhibit B).

Surplus Account June 1955 (Exhibits C and D).

Comparative Statement of Operating Expenses for fiscal year 1953-54 and 1954-55 (Exhibit E).

Operating Expenses for past four fiscal years (Schedules Nos. 1,2,3 and 4).

Additions, Betterments and Replacements for fiscal year 1954-55 (Schedule No.5).

Agricultural Division, Receipts and Expenses for past five years (Schedule No.6).

Operating Expenses, City Distribution Division for fiscal year 1954-55 (Schedule Nos. 11 and 12).

Operating Expenses, outside of San Francisco for fiscal year 1954-55 (Schedules Nos. 13 and 14).

Sale of water for the fiscal year 1954-55 was $13,423,470.22 as against $12,817,944.81 for prior year, an increase of $605,525.41 or 1.14% in San Francisco consumption area and 16.29% outside of San Francisco.

Other income amounts to $578,908.99 as against $923,092.79 for prior year, a decrease of $344,183.80.

Operating Expenses show a net increase of $946,365.45 as shown by the following tabulation:

	Increase	Decrease
Source of Supply	$ 56,764.44	
Standby Charge and Purchase of water	484,410.00	
Pumping Expenses	25,621.36	
Purification Expenses	1,020.91	
Transmission and Distribution Expenses	45,385.68	
Commercial Div'n Expenses	9,745.44	
Administrative & General	142,927.34	
Taxes Actual	30,827.33	
Provision for Doubtful Accounts	2,989.41	
Provision for Depreciation	100,834.27	
Municipal Taxes, Comparison*	55,193.40	
Revision for Contingent Refunds		$ 9,354.13
Net Increase		946,365.45
	$955,719.58	$955,719.58

*Water delivered to Municipal Departments offset by taxes.

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

DISPOSITION OF SURPLUS

SURPLUS	TO JUNE 30, 1954	YEAR 1954-1955	TO JUNE 30, 1955
CONTRIBUTED TO:			
GENERAL FUND	$ 15,992,457.24	$	$ 15,992,457.24
HETCH HETCHY PROJECT	4,510,127.21		4,510,127.21
HETCH HETCHY POWER	1,228.59		1,228.59
APPROPRIATED FOR:			
BOND REDEMPTION - SPRING VALLEY	24,000,000.00	1,000,000.00	25,000,000.00
" " - 1933 WATER DISTRIBUTION	9,844,594.33		9,844,594.33
1947 HETCH HETCHY BOND INTEREST & REDEMPTION	2,080,087.45	1,030,063.78	3,110,151.23
ADDITIONS AND BETTERMENTS	21,166,415.79	3,223,247.00	24,389,662.79
ADDITIONS & BETTERMENTS, LAKE MERCED PROJECT	1,250,000.00		1,250,000.00
PURCHASE OF LAND	54,858.50		54,858.50
OTHER PURCHASES	100,429.29		100,429.29
FROM SURPLUS	—2,280,725.89	—2,375,869.58	—4,656,595.47
	$76,719,472.51	$2,877,441.20	$ 79,596,913.71
ADD:			
INITIAL EXCESS EARNINGS-SPRING VALLEY WATER CO.	$ 4,152,652.24	$	$ 4,152,652.24
VALUATION MUNICIPAL WATER WORKS	100,000.00		100,000.00
GRANTS EARNED ON FEDERAL PROJECTS	2,358,987.60		2,358,987.60
CONTRIBUTIONS IN AID OF CONSTRUCTION		165,000.00	165,000.00
SURPLUS MATERIAL AND EQUIPMENT	373,041.59		373,041.59
LAND SALES - PROFIT	1,152,111.35	170,344.85	1,322,456.20
BOND PREMIUM	840,660.86		840,660.86
PALO ALTO PIPE LINE	360,271.90		360,271.90
MISCELLANEOUS ADDITIONS	398,027.42		398,027.42
BAY BRIDGE PUMP AND SUPPLY LINE	219,601.79		219,601.79
1947 HETCH HETCHY BOND FUND STRUCTURES	12,634,481.95		12,634,481.95
REVALUATION OF WATER DEPT. PROPERTIES	765,951.12		765,951.12
	$ 23,355,787.82	$ 335,344.85	$23,691,132.67
DEDUCT:			
CONTRIBUTION BY HETCH HETCHY FOR SUTRO RESV'R	$ 409,471.41	$	$ 409,471.41
CONTRIBUTION TO GENERAL FUND	15,992,457.24		15,992,457.24
DEFICIT COUNTY LINE WATER WORKS	19,189.15		19,189.15
PAYMENT FOR PURPOSE OF ENABLING CITY TO TAKE OVER PROPERTIES IN ADVANCE	745,274.31		745,274.31
LANDS CONTRIBUTED TO CITY	172,564.67		172,564.67
CONTRIBUTION TO HETCH HETCHY WATER SUPPLY	4,430,005.85		4,430,005.85
MISCELLANEOUS DEDUCTIONS FROM SURPLUS	275,549.70		275,549.70
DEPRECIATION DUE TO REVALUATION	9,059,955.03		9,059,955.03
DEPRECIATION NOT FUNDED	12,981,164.45	1,062,904.64	14,044,069.09
	$ 44,085,631.81	$ 1,062,904.64	$45,148,536.45
	$ 55,989,628.52	$ 2,149,881.41	$58,139,509.93

EXHIBIT "A"

SAN FRANCISCO WATER DEPARTMENT

BALANCE SHEET

JUNE 30, 1955

ASSETS

FIXED CAPITAL:		
IN SERVICE	$ 98,119,311.82	
NOT IN SERVICE	749,005.36	
	$ 98,868,317.18	
LESS PROV'N FOR DEPRECIATION	32,577,728.38	
	$ 66,290,588.80	
CONSTRUCTION WORK IN PROGRESS	1,309,511.73	$67,600,100.53
CASH:		
TREASURER'S BALANCE, SCHEDULE ANNEXED	$ 6,708,173.01	
REVOLVING FUND	30,000.00	
OTHER CASH	-	6,738,173.01
ACCOUNTS RECEIVABLE:		
CONSUMERS' ACCOUNTS	$ 977,245.35	
LESS RESERVE FOR LOSSES	101,165.88	
	$ 876,079.47	
OTHER ACCOUNTS RECEIVABLE:		
REVENUE	35,617.79	
NON-REVENUE	827.04	912,524.30
INTERFUND ACCOUNTS:		
SCHEDULE ANNEXED:		
PUBLIC SERVICE ENTERPRISES	$ 5,379.33	
GENERAL CITY AND COUNTY	1,990.38	7,369.71
DEFERRED CHARGES:		
OPERATING FUND EXPENDITURES UNBILLED	$ 9,299.38	
PREPAID TAXES	-	
HETCH HETCHY PROJECT	-	
DEPOSIT FOR ORDERS OF POSSESSION	30,709.50	
MATERIALS AND SUPPLIES	388,944.07	
MISC. JOBBING & SALES A/C, ETC.	17,017.95	
PUBLIC UTILITIES COMMISSION	-	445,970.90
TOTAL ASSETS		$75,704,138.45

LIABILITIES

BONDED DEBT:		
SPRING VALLEY WATER BONDS 1928	$16,000,000.00	
MATURED, NOT PRESENTED FOR PAYMENT:		
SPRING VALLEY 1928	15,000.00	$16,015,000.00
BOND INTEREST PAYABLE:		
ACCRUED NOT DUE:		
SPRING VALLEY WATER BONDS 1928	$ 360,000.00	
MATURED, NOT PRESENTED FOR PAYMENT:		
SPRING VALLEY, 1928	9,990.00	369,990.00
ACCOUNTS PAYABLE:		
WARRANTS OUTSTANDING, SCHEDULE ANNEXED	$ 133,966.64	
CONSUMERS' DEPOSITS & ADVANCES	172,515.55	
GENERAL CREDITORS	232,026.29	
ACCRUED PAYROLL	-	
PAYROLL DEDUCTIONS PAYABLE	25,071.78	563,580.26
INTERFUND ACCOUNTS:		
SCHEDULE ANNEXED:		
PUBLIC SERVICE ENTERPRISES	$ 135,541.23	
GENERAL CITY AND COUNTY	62,952.06	198,493.29
DEFERRED CREDITS:		
RESERVE FOR CONTINGENCY REFUNDS-FUNDED	$ 140,785.81	
RESERVE FOR CONTINGENCY REFUNDS-UNFUNDED	13,195.31	
RESERVE FOR COMPENSATION INSUR.	127,222.94	
OTHER DEFERRED CREDITS	131,360.91	417,564.97
SURPLUS, SCHEDULE ANNEXED		53,139,509.93
TOTAL LIABILITIES		$75,704,138.45

INCOME ACCOUNT

TWELVE MONTHS ENDING JUNE 30, 1955 AND 1954

	TWELVE MONTHS ENDING JUNE 30		INCREASE OR DECREASE	CUMULATION FROM MARCH 3, 1930 TO JUNE 30, 1955
	1955	1954		
SALE OF WATER:				
SAN FRANCISCO	$9,097,897.46	$9,042,320.08	$ 55,577.38	$183,252,687.77
OUTSIDE OF SAN FRANCISCO	3,524,984.72	3,031,240.85	493,743.87	27,962,755.94
MUNICIPAL DEPARTMENTS - ACTUAL	61,023.47	60,012.71	1,010.76	1,480,119.75
MUNICIPAL DEPARTMENTS - COMPARISON*	739,564.57	684,371.17	55,193.40	12,726,608.17
	$13,423,470.22	$12,817,944.81	$605,525.41	$225,422,171.63
OTHER EXPENSES:				
SOURCE OF WATER SUPPLY	$ 450,365.88	$ 393,601.44	$ 56,764.44	$ 7,070,741.17
STANDBY CHARGE & PURCHASE OF WATER	4,030,000.00	3,545,590.00	484,410.00	36,856,061.92
PUMPING	405,255.59	379,634.23	25,621.36	7,064,061.68
PURIFICATION	145,554.47	144,533.56	1,020.91	1,957,881.48
TRANSMISSION AND DISTRIBUTION	1,010,519.81	965,134.13	45,385.68	11,618,260.00
COMMERCIAL DIVISION	606,089.33	596,343.89	9,745.44	10,859,451.60
ADMINISTRATION AND GENERAL	772,804.66	626,186.97	146,617.69	9,172,424.26
TAXES - ACTUAL	636,174.37	605,347.04	30,827.33	8,565,151.28
PROVISION FOR DOUBTFUL ACCOUNTS	8,637.00	5,647.59	2,989.41	259,128.79
PROVISION FOR DEPRECIATION	1,178,804.64	1,077,970.37	100,834.27	26,067,439.54
MUNICIPAL TAXES - COMPARISON*	739,564.57	684,371.17	55,193.40	12,742,846.89
RESERVE FOR REFUNDS	44,275.95	53,630.08	-9,354.13	159,731.99
	$10,028,046.27	$ 9,077,990.47	$ 950,055.80	$132,393,180.60
PROFIT FROM OPERATIONS:	3,395,423.95	3,739,954.34	-344,530.39	93,028,991.03
OTHER INCOME:				
RENTALS, INCLUDING CROP SHARES	$ 278,120.12	$ 280,749.79	$ -2,629.67	$ 2,773,068.16
INTEREST EARNED	17,106.19	18,750.04	-1,643.85	514,537.38
SALE OF WALNUTS	50,004.74	47,826.07	2,178.67	881,353.14
MISCELLANEOUS	233,677.94	575,766.89	-342,088.95	1,067,630.50
	$ 578,908.99	$ 923,092.79	$-344,183.80	$ 5,236,589.18
OTHER EXPENSES:				
BOND INTEREST	$ 875,663.98	$ 914,115.14	$ -38,451.16	$ 37,385,577.47
AGRICULTURAL DIVISION	14,273.53	19,299.96	-5,026.43	406,725.59
WALNUT ORCHARD EXPENSES	49,131.07	29,541.89	19,589.18	594,650.84
MISCELLANEOUS	20,319.17	11,216.18	9,102.99	114,260.33
	$ 959,387.75	$ 974,173.17	$ -14,785.42	$ 38,501,214.23
NET INCOME	$ 3,014,945.19	$3,688,873.96	$-673,928.77	$ 59,764,365.98

*WATER SERVICE TO MUNICIPAL DEPARTMENTS OFFSET BY MUNICIPAL TAXES.

EXHIBIT "C"

SAN FRANCISCO WATER DEPARTMENT

SURPLUS ACCOUNT

FOR TWELVE MONTHS ENDING JUNE 30, 1955

SURPLUS, JUNE 30, 1954	$55,989,628.52	
ADD:		
NET INCOME FOR TWELVE MONTHS ENDING JUNE 30, 1955	3,014,945.19	
CONTRIBUTION FROM STATE DIV'N OF HIGHWAYS - COST OF RELOCATING GUADALUPE TRESTLE	165,000.00	$59,169,573.71
DEDUCT:		
CONTRIBUTION TO 1947 H.H. WATER BOND FUND		1,030,063.78
SURPLUS - JUNE 30, 1955		$58,139,509.93

EXHIBIT "D"

SAN FRANCISCO WATER DEPARTMENT

COMPOSITION OF SURPLUS - CONDENSED

JUNE 30, 1955

INITIAL SURPLUS - MARCH 3, 1930				
AMORTIZATION ON CONTRIBUTION (SPRING VALLEY)		$ 4,152,652.24		
VALUATION OF MUNICIPAL WATER WORKS		100,000.00		
		$ 4,252,652.24		
LESS: ADD'L ALLOWANCE FOR DEPRECIATION MARCH 1, 1920 TO MARCH 3, 1930		2,327,916.67	$1,924,735.57	
ADDITIONS:				
NET PROFIT, MARCH 3, 1930 TO JUNE 30, 1955		$59,764,365.98		
MISCELLANEOUS AND YEAR TO YEAR ADJUSTMENTS		5,178,067.22		
CONTRIBUTION FROM HETCH HETCHY POWER DIV'N		409,471.41		
BAY DIV'N P/L #3 AND SUNSET SUPPLY LINE IN SERVICE (PAID FROM PROCEEDS OF 1947 H.H. WATER BONDS)		12,634,481.95	77,986,386.56	
GRANTS EARNED ON FEDERAL PUBLIC WORKS PROJECT			2,358,987.60	
YEAR TO YEAR - ADDITIONS TO SURPLUS - JUNE 30, 1955			1,669,481.49	$83,939,591.22
DEDUCTIONS:				
CONTRIBUTED TO GENERAL FUND			$15,992,457.24	
" " 1947 H.H. WATER BOND FUND		$ 3,110,151.23		
" " H. H. WATER SUPPLY		4,430,005.85	7,540,157.08	
LANDS CONTRIBUTED TO CITY AND COUNTY OF SAN FRANCISCO FOR STREETS & BOULEVARDS			172,564.67	
EXCESS OF ADJUSTED BOOK VALUE OF PLANT APPRAISAL DEC. 31, 1937	$1,990,474.91			
" " " " " " " " JUNE 30, 1953	188,291.42	$ 2,178,766.33		
LESS: ADJUSTED BOOK VALUE ON PLANT APPRAISAL JUNE 30, 1948		83,864.03	2,094,902.30	25,800,081.29
SURPLUS - JUNE 30, 1955				$58,139,509.93

EXHIBIT "E"

COMPARATIVE STATEMENT OF OPERATING EXPENSES
FOR THE FISCAL YEARS ENDING JUNE 30, 1954 AND JUNE 30, 1955

	FISCAL YEAR ENDED JUNE 30	
	1954	1955
SOURCE OF WATER SUPPLY EXPENSES:		
SUPERINTENDENCE	$ 56,857.31	$63,496.68
OPERATING LABOR	76,267.18	79,621.36
OPERATING SUPPLIES AND EXPENSES	18,271.51	20,804.58
REPAIRS & MAINTENANCE - BUILDINGS, FIXTURES & GROUNDS	178,604.35	162,497.97
REPAIRS - SURFACE FACILITIES	63,601.09	123,945.29
	$393,601.44	$ 450,365.86
PUMPING EXPENSES:		
LABOR - PUMPING	$ 99,632.36	$ 104,246.50
FUEL FOR STEAM	67,418.97	69,310.37
POWER PURCHASED	189,534.84	208,460.14
LUBRICANTS	16.22	37.25
MISCELLANEOUS SUPPLIES AND EXPENSES	2,159.82	1,863.69
REPAIRS - PRIMARY PUMPING EQUIPMENT	12,136.54	9,363.19
REPAIRS - BOILERS AND EQUIPMENT	393.34	76.51
REPAIRS - MISCELLANEOUS EQUIPMENT	2,102.09	2,154.52
REPAIRS - BUILDING FIXTURES AND GROUNDS	6,240.05	9,743.42
	$379,634.23	$ 405,255.59
PURIFICATION EXPENSES:		
SUPERINTENDENCE AND LABOR	$ 51,844.07	$ 52,048.20
SUPPLIES AND EXPENSE	91,349.59	92,627.49
REPAIRS - PLANT, STRUCTURES AND EQUIPMENT	1,339.90	878.78
	$144,533.56	$ 145,554.47
TRANSMISSION AND DISTRIBUTION EXPENSES:		
SUPERINTENDENCE	$ 96,369.09	$ 85,581.04
PATROLLING STORAGE FACILITIES	26,007.06	26,450.07
METERS AND FITTINGS DEPARTMENT	181,415.97	147,833.57
STREET DEPARTMENT	34,886.93	38,954.49
CONSUMERS' PREMISES EXPENSES	59,541.61	62,647.91
MISCELLANEOUS SUPPLIES AND EXPENSES	28,775.88	25,935.95
REPAIRS - TRANSMISSION MAINS AND CANALS	53,746.97	82,818.91
REPAIRS - RESERVOIRS, TANKS AND STANDPIPES	29,973.25	7,390.63
REPAIRS - DISTRIBUTION MAINS AND CANALS	175,454.48	174,677.86
REPAIRS - SERVICE CONNECTIONS	172,827.04	163,400.45
REPAIRS - DISTRIBUTION BUILDINGS AND GROUNDS	49,491.47	48,867.11
REPAIRS - DISTRIBUTION EQUIPMENT	10,261.85	11,498.93
RECONSTRUCT AND RELOCATE PIPE LINES AND SERVICES	46,382.53	134,462.89
	$ 965,134.13	$1,010,519.81

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

EXHIBIT "E"

- Continued -

	FISCAL YEAR ENDED JUNE 30 1954	1955
COMMERCIAL EXPENSES:		
COLLECTIONS	$ 148,359.87	$ 147,228.12
READING METERS	75,579.21	77,152.91
BOOKKEEPING DEPARTMENT	198,343.60	194,256.88
GENERAL	76,492.26	87,113.65
INSPECTION AND SERVICE	71,919.30	72,188.68
SHIPPING	25,649.65	28,149.09
	$ 596,343.89	$ 606,089.33
ADMINISTRATIVE AND GENERAL EXPENSE:		
SALARIES - GENERAL OFFICERS	$ 23,791.00	$ 35,825.26
SALARIES - GENERAL OFFICE CLERKS	76,244.01	77,210.54
MISCELLANEOUS SUPPLIES AND EXPENSES	2,613.20	2,891.40
INJURIES AND DAMAGES	8,498.05	14,629.24
RETIREMENT SYSTEM CONTRIBUTIONS	215,293.96	234,016.92
MASON STREET BUILDING EXPENSE	41,771.71	46,846.16
TELEPHONE SERVICE	35,109.63	36,652.11
GUEST COTTAGES AND REST ROOM	85.16	-
GENERAL ENGINEERING	88,753.09	102,609.95
HYDROGRAPHY	849.82	848.80
MISCELLANEOUS	1,306.61	21,707.16
COMPENSATION INSURANCE	21,239.63	19,568.03
OTHER INSURANCE	13,911.57	13,546.53
REPAIRS - MASON ST. BUILDING	2,827.58	48,460.37
REPAIRS - TELEPHONE SYSTEM	35,219.63	17,540.73
PROFESSIONAL SERVICES	21,370.59	4,094.25
PUBLIC UTILITY COM'N EXPENSE	58,241.60	96,357.21
PROPERTY TAXES (OUTSIDE OF SAN FRANCISCO)	605,347.04	636,174.37
	$1,252,473.88	$ 1,408.979.03

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

OPERATING EXPENSES
SCHEDULE NO. 1

RESERVOIRS AND SOURCES:	1951-1952	1952-1953	1953-1954	1954-1955
	$	$	$	$
INSIDE OF SAN FRANCISCO:				
Lake Merced	5,245.47	6,041.64	14,370.48	5,841.09
OUTSIDE OF SAN FRANCISCO:				
SURFACE SOURCES:				
San Andres Reservoir	20,368.61	20,681.44	24,367.47	24,125.65
Crystal Springs Reservoir	61,186.13	65,212.60	74,190.08	77,194.86
Pilarcitos Reservoir	33,115.06	31,462.30	37,114.28	32,332.60
Calaveras Reservoir	14,671.47	14,740.21	21,997.29	20,140.73
	$129,341.27	$132,096.55	$157,669.12	$153,793.84
GROUND SOURCES:				
Sunol Filter Beds	$ 13,819.48	$ 10,692.87	$ 16,426.83	$ 12,069.86
Pleasanton Wells	2,823.74	3,109.82	1,221.71	1,185.71
	$ 16,643.22	$ 13,802.69	$ 17,648.54	$ 13,255.57
SUPPLY LINES AND AQUEDUCTS:				
Bay Division Pipe Lines	$ 34,315.38	$ 57,161.61	$ 53,057.42	$112,738.82
Stone Dam Aqueduct	7,478.39	4,124.84	6,841.02	4,473.95
Niles-Irvington Pipe Line	938.43	2,845.89	1,671.70	2,061.82
Other Supply Lines and Aqueducts	10,101.48	18,250.88	7,625.14	5,624.34
	$ 52,833.68	$ 82,383.22	$ 69,195.28	$124,898.93
Alameda System - General Expenses	$ 31,137.29	$ 28,785.54	$ 34,980.70	$ 38,596.00
Peninsula System - General Expenses	92,285.12	99,195.13	99,737.32	113,980.45
	$123,422.41	$127,980.67	$134,718.02	$152,576.45
TOTAL SOURCE OF SUPPLY EXPENSE	$327,486.05	$362,304.77	$393,601.44	$450,365.88

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 2
OPERATING EXPENSES

PUMP STATIONS	1951-1952	1952-1953	1953-1954	1954-1955
	$	$	$	$
INSIDE OF SAN FRANCISCO:				
STEAM PLANTS:				
Central	117,797.92	127,293.87	147,366.25	142,085.05
City	30.22			
Clarendon Heights	407.96	300.50	565.83	
	$116,236.10	$127,594.37	$147,932.08	$142,085.05
ELECTRIC PUMPS:				
Alemany	$ 28,099.00	$ 36,208.83	$ 44,072.46	$ 45,141.93
Bay Bridge Pump - Treasure Island	9,026.82	8,493.67	8,413.82	8,986.10
Bernal Heights	361.04	416.62	484.46	446.71
Fairview	467.57	600.42	532.32	798.52
Forest Hill	8,451.80	9,237.56	9,477.37	10,348.23
Francisco Street	2,574.85	2,869.66	3,050.19	2,788.00
Lake Honda Booster	288.98	340.70	259.88	407.55
Lake Merced			43.26	27,000.20
Lincoln Park	839.49	823.25	841.95	658.04
Mount Davidson			1,051.44	861.22
Newcomb Avenue	6,008.46	5,991.14	4,498.89	4,701.11
Olmstead and University	965.63	1,213.57	765.10	808.76
Palo Alto	328.97	417.53	465.53	194.04
Potrero Heights	627.00	636.02	504.64	1,126.43
Summit				97.03
Sunset Booster	434.48	407.20	400.30	
Sunset Source	2.00		1.08	
Twin Peaks	1,608.22	1,153.82	927.82	1,170.02
General	1,058.86	715.48	1,014.98	1,436.09
Hunter's Point		190.95		
	$ 61,143.17	$ 69,716.42	$ 76,805.49	$106,969.98
TOTAL INSIDE OF SAN FRANCISCO	$179,379.27	$197,310.79	$224,737.57	$249,055.03
OUTSIDE OF SAN FRANCISCO:				
Baden	$ 1,058.67	$ 1,709.05	$ 1,797.78	$ 2,632.42
Crystal Springs Pump	107,943.79	138,624.84	137,774.31	142,046.96
Bay Division Pump	302.21	286.64	480.89	594.25
Pleasanton Pump	3,667.61	1,857.34	1,468.10	1,678.32
Pleasanton Township Water District	1,138.73	2,153.38	2,491.49	3,300.85
Irvington Pump	23,017.95	19,307.77	10,884.09	5,947.76
	$137,133.96	$163,939.02	$154,896.66	$156,200.56
	$316,513.23	$361,249.81	$379,634.23	$405,255.59

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 3
OPERATING EXPENSES

PURIFICATION EXPENSES	1951-1952 $	1952-1953 $	1953-1954 $	1954-1955 $
INSIDE OF SAN FRANCISCO:				
Alemany Fluoridation		2,699.82	2,412.21	2,003.43
College Hill	1,044.67	653.04	664.21	474.97
Francisco Street	47.97	53.75	66.05	54.08
Lake Honda	107.64	33.67	9.85	-
Lake Merced			233.35	94.55
Lombard Street	125.93	69.54	42.96	42.96
Sunset	433.69	759.15	451.84	222.15
Sutro		107.36	72.04	.88
University Mound	1,264.92	2,187.75	2,056.55	1,158.52
TOTAL INSIDE OF SAN FRANCISCO	$3,024.82	$6,564.18	$6,009.06	$4,051.54
OUTSIDE OF SAN FRANCISCO:				
North San Andres Fluoridation Plant		$ 8,829.86	$ 14,466.76	$ 10,329.64
Rock River Lime Plant	$ 11,639.06	11,306.54	15,282.44	16,005.34
San Andres Reservoir	9,087.76	13,219.28	7,972.84	12,229.71
Crystal Springs Reservoir	15,829.62	11,419.94	8,161.94	8,954.35
Calaveras Reservoir	15,520.43	16,427.41	7,783.58	7,972.74
Sunol Purification System	2,091.86	1,041.63	453.76	1,106.78
Other Outside Stations	1,974.04	2,663.58	2,959.46	1,514.04
Coast Range Division, H.H.W.S.	19,685.85	18,702.03	25,854.22	28,453.81
Millbrae Laboratory	46,112.10	51,956.10	55,589.50	54,935.54
TOTAL OUTSIDE OF SAN FRANCISCO	$121,940.72	$135,566.37	$138,524.50	$141,501.95
TOTAL PURIFICATION EXPENSES	$124,965.54	$142,130.55	$144,533.56	$145,553.49

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 4
OPERATING EXPENSES

TRANSMISSION AND DISTRIBUTION	1951-1952	1952-1953	1953-1954	1954-1955
	$	$	$	$
INSIDE OF SAN FRANCISCO:				
City Transmission Lines	3,941.10	7,416.08	10,681.13	18,757.08
Reconstruct and Relocate Pipe Lines	32,706.19	44,754.92	46,382.53	16,835.90
" " " Water Services				117,626.99
City Distribution Reservoirs	54,591.94	61,288.64	91,376.93	68,566.41
Meter Expenses	107,952.22	98,561.61	163,556.72	128,442.89
Street Department Expenses	28,444.51	29,559.11	34,886.93	38,954.49
Main Repairs	139,250.34	170,413.58	175,403.46	174,642.70
Service Connection Repairs	152,066.44	166,578.39	172,827.04	163,395.18
Repairs to Buildings and Equipment	9,017.97	14,544.10	10,261.85	11,498.93
Operation of Corporation Yard	18,836.93	16,434.39	26,924.56	23,917.76
Consumers' Premises Expenses	51,295.17	55,332.34	59,541.61	62,647.91
Superintendence	73,145.51	77,210.65	96,369.09	85,581.04
TOTAL INSIDE SAN FRANCISCO	$671,248.32	$742,093.81	$888,211.85	$910,867.28
OUTSIDE OF SAN FRANCISCO:				
Alameda Supply Line - Alameda Division	$ 512.47	$ 712.54	$ 868.44	$ 223.05
Alameda Transmission Line	3,611.23	6,041.02	4,152.70	12,816.97
Sunset Transmission Line	1,129.08	4,707.93	3,396.80	2,003.00
Crystal Springs Pump Aqueduct	10,882.74	11,866.86	13,989.72	16,889.84
New Crystal Springs Transmission Line	2,024.23	3,355.60	7,150.72	11,320.12
Old Crystal Springs Transmission Line	22,889.84	12,061.09	9,482.43	14,310.76
San Andres Transmission Line #1 to College Hill	2,560.17	5,796.67	5,249.52	8,752.91
San Andres Transmission Line #2 to Sunset	3,454.87	3,947.78	5,160.57	3,621.10
San Andres Transmission Line #3 to Merced Manor	4,428.35	8,462.31	3,191.51	2,967.37
Palo Alto Pipe Line	4.65	357.19	283.30	1,164.20
Niles Regulating Reservoir	4,511.48	4,896.95	6,080.15	6,114.72
Pleasanton Transmission Line	34.50	19.15	6.15	37.38
Meter Expense, Peninsula Division	21,118.19	19,260.26	17,776.34	18,903.09
" " Alameda Division	399.50	190.20	133.93	528.02
TOTAL OUTSIDE OF SAN FRANCISCO	$ 77,561.30	$ 81,675.55	$ 76,922.28	$ 99,652.53
TOTAL TRANSMISSION AND DISTRIBUTION EXPENSES	$748,809.62	$823,769.36	$965,134.13	$1,010,519.81

SCHEDULE NO. 5

SAN FRANCISCO WATER DEPARTMENT

ADDITIONS, BETTERMENTS AND REPLACEMENTS

JUNE 30, 1955

AC. NO.	CONTR. NO.	NAME	RETIREMENTS	ADDITIONS	ENGINEERING OFFICE	ENGINEERING FIELD	FORCE ACCOUNT	CONTRACTS	MATERIALS AND SUPPLIES	CONTRACTUAL SERVICES	EQUIPMENT	MISCELLANEOUS
1015		PURCHASE OF LAND	$ 72,964.90	44,086.04	$	$	$	$	$	$ 7,745.27	$	$ 36,322.77
		SALE OF LAND										
1020		BUILDING, STRUCTURES & GROUNDS	2,872.00	19,594.81	3,082.85	1,316.20		15,129.40		66.36		
	539	CRYSTAL SPRINGS COTTAGE									2,147.90	
		OTHER STRUCTURES		2,147.90								
1025		SOURCE OF WATER SUPPLY										
	671	TRESTLE BENTS ON NILES IRV. P/L		21,989.06	1,755.00	1,545.80		18,628.54		59.72		
	705	CALAVERAS 44" PIPE LINE	137,745.05	167,386.17	5,272.62	7,707.94		153,386.60	1,019.01			
		RECTIFIERS AND ANODES-NEWARK		12,673.43			12,673.43					
		LOG BOOM - PILARCITOS	577.00	3,030.71							3,030.71	
		ELECTROLYSIS PROTECTION		43,090.60			43,090.60					
			$ 138,322.05	$248,169.97	$ 7,027.62	$9,253.74	$ 55,764.03	$ 172,015.14	$ 1,019.01	$ 59.72	$ 3,030.71	
1035		PURIFICATION										
		CRANE AND HOIST		1,623.97							1,623.97	
		CHLORINATORS, 2, LAKE MERCED		6,052.28							6,052.28	
		PLATFORM SCALES " "		539.72							539.72	
		OTHER PURIFICATION EQUIPMENT		3,109.26							3,109.26	
				$ 11,325.23							$ 11,325.23	
1040		TRANSMISSION AND DISTRIBUTION										METERS
		CAST IRON MAINS UNDER $2000		81,707.77			53,997.80		27,709.97			
		CAST IRON MAINS OVER $2000	18,725.27	242,408.86			22,843.43	106,256.11	113,309.32			
		INSTALL SERVICES IN S. F.	28,406.70	91,182.88			70,035.24		21,147.64			
		FURNISH & INSTALL METERS IN S.F.		76,014.48			13,578.03		10,775.43			$ 51,661.02
		CUT IN GATE VALVES		11,504.89			8,112.99		3,391.90			
	668	30" STEEL MAINS IN 25TH AVE.		54,965.69	742.20	2,208.28	638.85	51,376.36				
	708	RECONDITION 30" STEEL MAINS PORTOLA DRIVE	53,614.28	23,730.13			1,182.59	22,547.54				
	712	MIDTOWN TERRACE SUBDIVISION		46,891.03			1,106.81	16,510.17	29,274.05			
		OTHER ITEMS		2,370.44					1,032.05		1,338.39	
		INSTALL SERVICES OUTSIDE S.F.		30,564.30			17,942.64		12,621.66			
		FURNISH & INSTALL METERS OUTSIDE SAN FRANCISCO		46,830.69			978.87		6,407.13			39,444.69
	666	CRYSTAL SPRINGS 44" PIPE LINE	144,373.10	713,909.99	49,213.60	50,438.10		561,812.20	51,791.47	654.56		
			$ 245,119.35	$1,422,081.15	$49,955.86	$52,646.38	$ 190,417.25	$758,502.38	$277,460.62	$ 654.56	$ 1,338.39	$91,105.71
1045		GENERAL EQUIPMENT	6,031.90	59,056.65							59,056.65	
1046		AUTOMOTIVE EQUIPMENT	9,693.69	26,579.81							26,579.81	
			$ 475,003.89	$1,833,041.56	$60,066.33	$63,216.32	$246,181.28	$945,646.92	$278,479.63	$ 8,525.91	$ 103,478.69	$127,428.48

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 6

AGRICULTURAL DIVISION
RECEIPTS AND EXPENSES

	1950-1951	1951-1952	1952-1953	1953-1954	1954-1955
RECEIPTS, AGRICULTURAL:					
RENTALS - CATTLE LEASES	$ 87,426.32	$100,610.92	$108,989.53	$ 94,361.98	$100,969.12
RENTALS - FLAT RATES	31,766.66	27,508.24	11,835.78	6,392.70	15,280.37
RENTALS - SHARE CROPS	12,191.19	16,610.19	23,106.39	20,722.00	10,649.36
" - SPECIALTY			22,919.00	30,642.00	32,392.00
RECEIPTS, NON-AGRICULTURAL:					
RENTALS - FLAT RATES	11,071.28	13,216.47	17,670.81	12,113.46	16,755.08
TAXES PAID BY TENANTS	-	1,745.57	3,187.08	2,693.96	4,375.65
ROYALTIES	21,802.94	30,537.51	60,549.48	93,139.55	76,041.42
SALES OF WALNUTS	31,879.62	50,394.52	67,279.72	47,826.07	50,004.74
MISCELLANEOUS	7,237.64	14,350.10	15,777.67	12,746.64	13,604.62
TOTAL GROSS INCOME	$ 203,375.65	$ 254,973.52	$ 331,315.46	$320,638.36	$ 320,072.36
EXPENSES:					
ADMINISTRATIVE AND SUPERINTENDENCE	$ 15,644.10	$ 14,617.17	$ 12,698.91	$ 9,926.23	$ 13,678.51
MISCEL. OFFICE SUPPLIES AND EXPENSES	535.70	738.28	628.50	1,047.60	3,089.51
AUTOMOTIVE SERVICE	1,433.64	1,773.98	1,933.12	1,645.87	1,629.55
SHARE CROPS:					
STORAGE INSURANCE, HANDLING FREIGHT	246.03	316.03	135.29	351.00	203.98
CARE OF PROPERTIES:					
REPAIRS- BUILDINGS, STRUCTURES & GROUNDS	4,502.55	5,627.23	1,676.47	6,329.26	5,730.20
WALNUT ORCHARD:					
ADMINISTRATIVE & SUPERINTENDENCE				3,857.73-A	6,341.14
CARE OF ORCHARD	12,104.60	16,378.64	17,113.10	4,200.26-A	16,177.57
CROP HARVEST	8,415.99	11,563.24	15,178.32	9,386.74	10,484.25
PACKING HOUSE AND SELLING EXPENSE	4,895.93	8,665.83	16,592.05	11,415.66	14,215.80
DEPRECIATION				681.50	1,912.31
NET OPERATING EXPENSE	$ 47,778.54	$ 59,680.40	$ 65,955.76	$ 48,841.85	$ 73,462.82
NET INCOME	$ 155,597.11	$ 195,293.12	$265,359.70	$271,796.51	$246,609.54

A - DECREASE OVER PRIOR YEAR DUE TO CHARGING COST ON CROP YEAR INSTEAD OF FISCAL YEAR BASIS.

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE 11
OPERATING EXPENSES 1954-1955
CITY DISTRIBUTION DIVISION - PUMPING STATION ACCOUNT

STEAM PUMPS	LABOR	USE OF EQUIPMENT	MATERIAL & SUPPLIES	FUEL OR POWER	CONTRACTUAL SERVICE	TOTAL
	$	$	$	$	$	$
CENTRAL	72,283.84	21.35	461.74	69,310.37	7.75	142,085.05
ELECTRIC PUMPS						
ALEMANY	$10,169.35	$ 31.20	$ 74.01	$ 34,860.27	$ 7.10	$ 45,141.93
BAY BRIDGE - TREASURE ISLAND	1,155.93	49.00	16.43	7,643.70	121.04	8,986.10
BERNAL HEIGHTS	271.10	11.20	22.65	141.76		446.71
FAIRVIEW	480.41	41.60	5.71	270.80		798.52
FOREST HILLS	1,355.42	41.10	5.29	8,910.42	36.00	10,348.23
FRANCISCO STREET	487.30	34.60	54.64	2,211.46		2,788.00
LAKE HONDA	388.35	19.20				407.55
LAKE MERCED	1,551.11	89.05	159.06	25,200.98		27,000.20
LINCOLN PARK	200.85	38.40	1.40	417.39		658.04
MOUNT DAVIDSON	284.91	24.40	43.43	508.48		861.22
NEWCOMB AVENUE	627.27	27.20		4,046.64		4,701.11
OLMSTEAD & UNIVERSITY	244.84	26.60	6.10	531.22		808.76
PALO ALTO	150.32	16.20		27.52		194.04
POTRERO HEIGHTS	733.29	23.40	100.34	269.40		1,126.43
SUMMIT	54.92		42.11			97.03
TWIN PEAKS	367.65	22.40		779.97		1,170.02
GENERAL	1,250.34	39.40	87.67		58.68	1,436.09
	$19,773.36	$ 534.95	$ 618.84	$ 85,820.01	$ 222.82	$106,969.98

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 12
OPERATING EXPENSES - 1954-1955
CITY DISTRIBUTION DIVISION

SOURCE OF SUPPLY	LABOR	EQUIPMENT	SUPPLIES	SERVICE	PAVING	TOTAL
LAKE MERCED	$ 5,559.88	$ 9.00	$ 165.23	$ 106.98	$	$ 5,841.09
PURIFICATION						
ALEMANY FLUORIDATION			2,003.43			2,003.43
COLLEGE HILL	55.83	3.80	370.93	44.41		474.97
FRANCISCO STREET			35.71	18.37		54.08
LAKE MERCED	8.70	.80	82.40	2.65		94.55
LOMBARD		.80	16.89	25.27		42.96
SUNSET RESERVOIR	21.26		200.89			222.15
SUTRO RESERVOIR			.88			.88
UNIVERSITY MOUND	171.40	21.65	659.71	305.76		1,158.52
	$ 257.19	$ 27.05	$3,370.84	396.46		$ 4,051.51
TRANSMISSION AND DISTRIBUTION						
CITY TRANSMISSION LINES	$16,567.32	$1,299.90	$ 646.14	$ 243.72		$18,757.08
CITY RESERVOIRS	61,082.17	1,364.60	3,595.17	2,424.47	100.00	68,566.41
METER EXPENSE	66.679.25	1,834.46	31,270.94	618.89	28,039.35	128,442.89
STREET DEPARTMENT EXPENSE	37,746.60	818.15	54.69	335.05		38,954.49
OPERATION OF CORPORATION YARD	14,732.16	444.90	6,630.56	2,110.14		23,917.76
SUPERINTENDENCE	82,799.16	1,079.53	595.83	1,106.52		85,581.04
CONSUMERS' PREMISES EXPENSE	56,501.66	5,194.74	326.26	625.25		62,647.91
REPAIRS - DISTRIBUTION MAINS	138,591.43	7,349.95	14,242.16	1,800.80	12,658.36	174,642.70
REPAIRS - SERVICE CONNECTIONS	123,505.50	8,395.61	13,523.86	5,336.20	12,634.01	163,395.18
REPAIRS - BUILDING AND EQUIPMENT	9,970.61	51.75	1,475.54	1.03		11,498.93
RECONSTRUCT AND RELOCATE PIPE LINES	14,864.58	853.00	673.66	10.50	434.16	16,835.90
RECONSTRUCT AND RELOCATE WATER SERVICES	72,167.76	5,893.35	18,319.67	1,665.45	19,580.76	117,626.99
	$695,208.20	$ 34,579.94	$1,354.48	$16,278.02	$73,446.64	$10,867.28
TOTAL CITY DISTRIBUTION DIVISION	$701,025.27	$ 34,615.99	$94,890.55	16,781.46	$73,446.64	$20,759.91

SCHEDULE NO. 13

OPERATING EXPENSES - 1954-55

OUTSIDE SAN FRANCISCO

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SOURCE OF SUPPLY	LABOR	USE OF EQUIPMENT	MATERIAL AND SUPPLIES	CONTRACTUAL SERVICES	MISCELLANEOUS	TOTAL
SURFACE SOURCES:						
SAN ANDRES RESERVOIR	$21,635.59	$ 520.25	$ 1,509.31	$ 460.50	$	$ 24,125.65
CRYSTAL SPRINGS RESERVOIR	55,457.60	9,788.89	9,895.82	2,052.55		77,194.86
PILARCITOS RESERVOIR	26,014.51	2,280.26	3,737.58	300.25		32,332.60
CALAVERAS RESERVOIR	17,721.08	538.35	783.38	1,097.92		20,140.73
TOTAL	$120,828.78	$13,127.75	$ 15,926.09	$ 3,911.22		$153,793.84
GROUND SOURCES:						
SUNOL FILTER BEDS	$ 9,621.87	$ 166.35	$ 847.53	$ 1,434.11		$ 12,069.86
PLEASANTON WELLS	448.96	135.50	25.67	575.58		1,185.71
TOTAL	$ 10,070.83	$ 301.85	$ 873.20	$ 2,009.69		$ 13,255.57
SUPPLY LINES:						
BAY DIVISION PIPE LINE NO. 3	$ 4,028.69	$ 1,303.85	$ 204.09	$ 37.61	$	$ 5,574.24
BAY DIV'N P/L #1 & 2 (PENINSULA DIV'N)	41,905.96	5,509.18	4,260.56	11,977.09	2,439.41	66,092.20
STONE DAM AQUEDUCT	3,992.55	303.75	122.85	54.80		4,473.95
NILES-IRVINGTON PIPE LINE	1,667.36	394.10	.36			2,061.82
BAY DIV'N P/L #1 & 2 (ALAMEDA DIV'N)	23,371.50	2,139.25	1,619.26	11,507.96	2,434.41	41,072.38
OTHER SUPPLY LINES & AQUEDUCTS (PENINSULA DIVISION)	720.95	45.30	1,039.41	134.31		1,939.97
OTHER SUPPLY LINES (ALAMEDA DIVISION)	1,643.75	317.20	1,645.04	78.38		3,684.37
TOTAL	$ 77,330.76	$10,012.63	$ 8,891.57	$ 23,790.15	$ 4,873.82	$124,898.93
GENERAL EXPENSE:						
PENINSULA SYSTEM	$102,213.65	$ 3,334.97	$ 4,608.31	$ 3,481.10	$ 342.42	$113,980.45
ALAMEDA SYSTEM	33,226.93	3,781.25	746.91	766.84	74.08	38,596.00
TOTAL	$135,440.57	7,116.22	$ 5,355.22	$ 4,247.94	$ 416.50	$152,576.45
TOTAL SOURCE OF SUPPLY	$343,670.94	$30,558.45	$31,046.08	$ 33,959.00	$ 5,290.32	$444,524.79

OPERATING EXPENSES
OUTSIDE OF SAN FRANCISCO

	LABOR	USE OF EQUIPMENT	MATERIAL & SUPPLIES	FUEL OR POWER	CONTRACTUAL SERVICE	TOTAL
PUMPING STATIONS						
BADEN PUMP	$ 2,333.94	$ 49.45	$ 112.84	$ 28.43	$ 107.76	$ 2,632.42
BAY DIVISION PUMP				594.25		594.25
CRYSTAL SPRINGS PUMP	25,926.65	875.19	946.02	112,689.18	1,609.92	142,046.96
PLEASANTON PUMP	1,080.56	10.80	3.18	583.78		1,678.32
PLEASANTON TOWNSHIP WATER DISTR.				3,300.85		3,300.85
IRVINGTON PUMP	460.28	41.10	2.74	5,443.64		5,947.76
OUTSIDE PUMPING EXPENSES	$29,801.43	$ 976.54	$1,064.78	$122,640.13	$1,717.68	$ 156,200.56
PURIFICATION						
SAN ANDRES RESV'R	$ 1,619.25	$ 17[illegible].00	$8,943.49	$	$1,488.97	$ 12,229.71
CRYSTAL SPRINGS RESV'R	2,384.64	271.60	6,120.45		177.66	8,954.35
CALAVERAS RESV'R	707.58	244.25	6,759.54		261.37	7,972.74
SUNOL PURIFICATION STATION	634.33	9.90	462.55			1,106.78
OTHER OUTSIDE STATIONS	305.79	659.75	227.98		320.52	1,514.04
COAST RANGE DIVISION - H.H.P.	778.43	1,354.65	24,309.22		2,011.51	28,453.81
LIME TREATMENT PLANT			14,778.32		1,227.02	16,005.34
NORTH SAN ANDRES FLUORIDATION STA.	149.10		10,180.54			10,329.64
MILLBRAE LABORATORY	45,856.52	4,806.83	1,703.81		2,568.38	54,935.54
OUTSIDE PURIFICATION EXPENSES	$ 52,435.64	$ 7,524.98	$ 73,485.90		$ 8,055.43	$ 141,501.95
TRANSMISSION & DISTRIBUTION						
PENINSULA DIVISION:						
ALAMEDA TRANSMISSION LINE	$ 9,585.99	$ 739.95	$ 1,041.38		$ 1,449.65	$ 12,816.97
CRYSTAL SPRINGS AQUEDUCT	10,670.76	273.50	378.17		5,567.41	16,889.84
CRYSTAL SPRINGS AQUEDUCT (OLD)	9,021.74	870.30	2,874.64		1,544.08	14,310.76
CRYSTAL SPRINGS AQUEDUCT (NEW)	10,010.53	597.35	548.34		163.90	11,320.12
SAN ANDRES TRANSM. LINE #1 TO COLLEGE HILL	6,201.24	80.10	2,330.30		141.27	8,752.91
SAN ANDRES TRANSM. LINE #2 TO SUNSET	2,685.11	78.10	825.89		32.00	3,621.10
SAN ANDRES TRANSM. LINE #3 TO MERCED MANOR	2,800.36	61.00	51.51		54.50	2,967.37
SUNSET TRANSMISSION LINE	1,730.96	83.90	156.14		32.00	2,003.00
PALO ALTO PIPE LINE	761.59	346.55	29.27		26.79	1,164.20
METER EXPENSE	12,113.21	2,006.38	4,615.29		168.21	18,903.09
TOTAL PENINSULA DIVISION EXPENSE	$ 65,581.49	$ 5,137.13	$ 12,850.93		$ 9,179.81	$ 92,749.36
ALAMEDA DIVISION:						
NILES REGULATING RESERVOIR	$ 5,898.84	$ 19.65	$ .76		$ 195.47	$ 6,114.72
ALAMEDA SUPPLY LINE	149.40	73.65				223.05
PLEASANTON TRANSM. LINE	37.38					37.38
METER EXPENSE	231.67	97.10	178.50		20.75	528.02
TOTAL ALAMEDA DIVISION EXPENSE	$ 6,317.29	$ 190.40	$ 179.26		$ 216.22	$ 6,903.17
TOTAL TRANSMISSION & DISTRIBUTION EXPENSE	$ 71,898.78	$ 5,327.53	$ 13,030.19		$ 9,396.03	$ 99,652.53
OUTSIDE SAN FRANCISCO	$154,135.85	$13,829.05	$ 87,580.87	$122,640.13	$ 19,169.14	$397,355.04

CHARGES OF NON-PAYING MUNICIPAL ACCOUNTS
FOR THE FISCAL YEARS 1953-1954 AND 1954-1955

	1953-1954	1954-1955	INCREASE	DECREASE
Hydrants	$ 257,263.50	$ 258,181.70	$ 918.20	
Fire Boats	439.96	127.67		$ 312.29
Fire Department	23,733.47	24,546.04	812.57	
Police Department	5,279.18	4,867.53		411.65
Parks & Playgrounds	161,920.68	174,352.33	12,431.65	
Golden Gate Park - Proper	41,045.01	52,000.74	10,955.73	
Libraries	2,378.21	2,562.01	183.80	
Opera House & War Memorial Bldg.	2,418.66*	3,002.24	583.58	
" " " " " "	424.93*			424.93
" " " " " "	18.00*			18.00
Memorial Museum-Sta.M-G.G.Park-Fulton & 10th Ave	495.35	411.82		83.53
Curator-Pal.Leg.Hon.Lincoln Pk.Clement & 39th Ave	255.66	384.36	128.70	
Aquarium	2,699.76	2,888.94	189.18	
Youth Guidance Center	3,526.56	3,742.56	216.00	
Adult Guidance Center	601.87	617.54	15.67	
Purchaser of Supplies	1,646.28	1,577.61		68.67
Exposition Auditorium	1,846.44	2,364.30	517.86	
Retirement Board	201.14	190.51		10.63
City Planning Commission	150.70	156.11	5.41	
Dept of Public Works (Public Bldgs)	70,038.58	88,463.82	18,425.24	
" " " " (Street Cleaning)	12,114.44	11,783.68		330.76
" " " " (Street Work & Sewers)	391.96	291.73		100.23
" " " " (Parked Areas & Pub.Sts.)	6,612.18	6,296.38		315.80
" " " " (Sidewalk Repairs)		28.56	28.56	
County Jail	23,644.19	30,900.92	7,256.73	
Dept of Electricity-General Alarm Station	197.88	197.95	.07	
Dept of Public Health	24,706.73	23,846.27		860.46
" " " "	1,495.45	1,602.44	106.99	
Relief Home	17,648.62	18,318.64	670.02	
Hassler Health Farm	7,274.79	7,827.28	552.49	
Public Welfare Dept.	342.61	347.37	4.76	
Registrar of Voters	62.23	64.77	2.54	
Municipal Railway	9,794.71	9,564.17		230.54
" " (Track Repairs)	4.81	9.62	4.81	
Municipal Airport	3,619.77	7,972.30	4,352.53	
Disaster Council	76.86	74.66		2.20
	$ 684,371.17	$ 739,564.57	$ 58,363.09	$ 3,169.69
		Net Increase.....		$55,193.40

* 3 Accounts for War Memorial & Opera House combined into one total January 1954

CHARGES OF PAYING MUNICIPAL ACCOUNTS FOR THE FISCAL YEARS 1953-1954 and 1954-1955

	1953-1954	1954-1955	INCREASE
SCHOOLS	$ 59,666.35	$ 59,927.88	$ 261.53
CHILD CARE CENTERS	346.36*	1,095.59	749.23
TOTALS	$ 60,012.71	$ 61,023.47	$1,010.76

* Child Care Centers billed separately from schools starting March 1954.

BOND REDEMPTION and INTEREST

WATER DEPARTMENT

	Redemption			Interest			Total Redemption plus Interest
	Spring Valley 1928	H.H. Water Service 1947	Total	Spring Valley 1928	H.H. Water Service 1947	Total	
1955-56	$ 1,000,000	$1,002,259	$ 2,002,259	$ 675,000	$ *173,356.14	$ 848,356.14	$ 2,850,615.14
1956-57	1,000,000	925,505	1,925,505	630,000	158,143.28	788,143.28	2,713,648.28
1957-58	1,000,000	924,505	1,924,505	585,000	144,365.55	729,365.55	2,653,870.55
1958-59	1,000,000	924,505	1,924,505	540,000	130,076.29	670,076.29	2,594,581.29
1959-60	1,000,000	924,505	1,924,505	495,000	114,591.59	609,591.59	2,534,096.59
1960-61	1,000,000	924,505	1,924,505	450,000	99,286.02	549,286.02	2,473,791.02
1961-62	1,000,000	924,505	1,924,505	405,000	84,244,68	489,244.68	2,413,749.68
1962-63	1,000,000	924,505	1,924,505	360,000	68,688.91	428,688.91	2,353,193.91
1963-64	1,000,000	924,505	1,924,505	315,000	52,618.70	367,618.70	2,292,123.70
1964-65	1,000,000	920,328	1,920,328	270,000	36,585.48	306,585.48	2,226,913.48
1965-66	1,000,000	225,328	1,225,328	225,000	23,676.00	248,676.00	1,474,004.00
1966-67	1,000,000	132,682	1,132,682	180,000	15,174.62	195,174.62	1,327,856.62
1967-68	1,000,000	132,682	1,132,682	135,000	7,994.39	142,994.39	1,275,676.39
1968-69	1,000,000	91,882	1,091,882	90,000	814.25	90,814.25	1,182,696.25
1969-70	1,000,000		1,000,000	45,000		45,000.00	1,045,000.00
Due on 6/30/55	$15,000,000	$9,902,201	$24,902,201	$5,400,000	$1,109,615.90	$6,509,615.90	$31,411,816.90

Original amounts and interest:

$41,000,000	$12,500,000	$53,500,000	4½%	1¼% to 6%

* $3,767.17 included in S.F.W.D. Budget

APPENDIX TO

REPORT OF SAN FRANCISCO WATER DEPARTMENT

Table	Description
1	San Francisco Rainfall
2	Rainfall - Watershed Stations
3	No Table No. 3
4	Reservoir Storage
5	Water Drawn from Hetch Hetchy and Auxiliary Sources
6	Source of Water Conveyed to the West Side of San Francisco Bay
7	Water Delivered Through Pipe Lines
8	Water Delivered at the Consumer's Meters
9	Average Daily Consumption Since 1865
10	Average Daily Consumption by Districts
11	Peak Day Consumption by Districts
12	Meters in Service, San Francisco
13	Meters in Service, Suburban District
14	Official Meter Tests
15	Unit Cost for Meter Maintenance
16	Unit Cost of Meter Installation
17	Unit Cost of Service Connections
18	Street Main Taps and Service Connection Record
19	Comparative Pumping Costs
20	Record of Bad Water Complaints
21	Record of No Water Complaints
22	Complaints - Poor Supply
23	Transmission Mains
24	Pipe Records, City Distribution System
25	Valve Records, City Distribution System
26	Contract Data

TABLE NO. 1

SAN FRANCISCO RAINFALL

(U.S. Weather Bureau Records)

Month	Season 1951-52 inches	Season 1952-53 inches	Season 1953-54 inches	Season 1954-55 inches	Normal 1954-55 inches
July	.01	0	T	0.03	.01
August	.43	.01	.07	0.20	.01
September	.08	0	T	T	.13
October	.81	.07	.34	0.24	1.07
November	3.33	2.42	1.88	2.55	2.27
December	7.92	9.06	0.82	5.67	4.07
January	10.69	3.26	3.11	4.05	4.03
February	2.62	0.04	2.42	1.18	3.91
March	4.90	1.83	4.56	0.29	2.78
April	1.08	3.42	0.82	1.49	1.49
May	0.30	0.38	0.11	.04	0.59
June	0.39	0.61	0.14	T	0.15
Totals	32.56	21.10	14.27	15.75	20.51

1954-55 Season 76.79% of normal

TABLE NO. 2

RAINFALL - WATERSHED STATIONS

(Water Department Records)

Station	Season 1951-52 inches	Season 1952-53 inches	Season 1953-54 inches	Season 1954-55 inches	Normal 1954-55 inches
San Francisco	32.56	21.10	14.27	15.75	20.51
Pilarcitos	60.07	42.33	34.48	28.40	45.11
San Andreas	46.09	30.47	24.41	22.06	37.11
Crystal Springs Upper	40.04	24.51	20.28	19.64	31.90
Crystal Springs Lower	39.16	25.20	18.67	17.66	27.48
Crystal Springs Cottage	44.82	25.60	20.82	20.07	26.96
Lake Merced	32.75	22.45	17.86	16.20	21.44
Pleasanton	28.26	17.17	11.66	12.98	20.84
Calaveras	32.85	21.15	17.09	17.18	23.77
Sunol	29.41	17.39	15.02	14.98	20.42
Niles	25.07	15.61	12.53	14.28	19.54
Hetch Hetchy	47.67	31.71	32.83	25.78	34.02
Lake Eleanor	59.67	37.02	42.29	30.43	41.57
Moccasin	40.39	22.81	26.14	20.81	26.57

TABLE NO. 4

RESERVOIR STORAGE
(Exclusive of Hetch Hetchy Sources)

MILLION GALLONS

	1951-52		1952-53		1953-54		1954-55	
	Max. Jan.26	Min. Nov.30	Max. July 1	Min. Dec.1	Max. July 1	Min. Feb.11	Max. July 1	Min. Dec.1
Calaveras	32,492	22,488	30,621	21,354	26,042	19,569	21,664	15,739
Crystal Springs	19,660	12,133	20,768	14,388	18,295	14,953	17,485	16,522
San Andreas	6,293	6,064	4,493	4,391	5,911	4,394	5,740	5,561
Pilarcitos	983	497	757	476	800	546	834	556
Lake Merced	2,588	2,311	2,163	2,179	2,174	2,281	2,311	2,230
City Reservoirs	272	242	275	283	277	260	259	282
TOTALS	62,288	43,735	59,077	43,071	53,499	42,003	48,293	40,890

TABLE NO. 5

WATER DRAWN FROM HETCH HETCHY AND AUXILIARY SOURCES

MILLION GALLONS

	1951-52	1952-53	1953-54	1954-55
Hetch Hetchy Supply	21,672	21,632	32,878	39,966
Pleasanton Wells and Sunol Filters*	1,338	1,008	123	None
	23,010	22,640	33,001	39,966

*No water was received from Pleasanton Wells subsequent to April 1949

TABLE NO. 6

SOURCE OF WATER CONVEYED
TO THE WEST SIDE OF SAN FRANCISCO BAY
YEARLY AVERAGE, MILLION GALLONS DAILY

	1951-52	1952-53	1953-54	1954-55
Pleasanton Wells and Sunol Filters (From Sunol Only)	3.7	2.7	0.3	None
Calaveras Reservoir	18.6	38.0	21.6	16.4
Hetch Hetchy Water Supply	59.0	59.2	89.9	105.0
Totals	81.3	99.9	111.8	121.4

TABLE NO. 7

WATER DELIVERED THROUGH PIPE LINES

Water Transported into San Francisco Consumption Area (1954-55)

San Andreas 54" Pipe Line	31.2 M.G.D.
College Hill 30" Supply Line	5.8 " " "
Baden-Merced Branch 30" P/L	8.2 " " "
Crystal Springs 44" P/L	9.4 " " "
" " 60" "	29.5 " " "
Sunset Supply 60" P/L	7.0 " " "
Total San Francisco Consumption Area	91.1 M.G.D.

Water Transported from Crystal Springs to San Andreas Reservoir:

Crystal Springs Pump Aqueduct	35.6 M.G.D.
Bay Division to Crystal Springs	100.1 M.G.D.

TABLE NO. 8

WATER DELIVERED AT THE CONSUMERS METERS SAN FRANCISCO DISTRICT

	1951-52	1952-53	1953-54	1954-55
Average Active Accounts	146,844	148,253	149,647	150,504
Number on June 30	147,362	149,145	150,149	150,860
Metered Delivery (M.C.F.)				
Residential	1,308.2	1,344.0	1,374.1	1,399.4
Com'l & Ind'l	1,903.3	1,940.1	1,955.2	1,939.5
Municipal - Actual	17.3	19.3	20.1	20.3
Municipal - Comparisons	194.4	238.5	223.8	257.1
Total (M.C.F.)	3,423.2	3,541.9	3,573.2	3,616.3
Average (M.G.D.)	70.3	72.8	73.4	74.3

SUBURBAN DISTRICT

	1951-52	1952-53	1953-54	1954-55
Average Active Accounts	756	759	751	740
Number on June 30	758	760	743	738
Meter Delivery (M.C.F.)				
Regular Rates	1,395.0	1,585.0	1,750.0	2,059.3
Contract Rates	36.7	*	*	*
Free Deliveries (Rip.Contract)	29.1	*	*	*
Total (M.C.F.)	1,460.8	1,585.0	1,750.0	2,059.3
Average (M.G.D.)	30.0	32.6	36.0	42.3

TOTAL SYSTEM

Metered Delivery (M.C.F.)	4,884.0	5,126.9	5,323.2	5,675.6
Average (M.G.D.)	100.3	105.4	109.4	116.6

*Effective July 1952, all accounts billed in accordance with rate schedule.

TABLE NO. 9

AVERAGE DAILY CONSUMPTION SINCE 1865
CONSUMPTION IN MILLION GALLONS PER DAY

Venturi Meter Records

YEAR	M.G.D.	YEAR	M.G.D.	YEAR	M.G.D.	YEAR	M.G.D.
1865	2.4	1885	17.0	1905	34.9	1925	42.6
1870	6.0	1890	20.4	1910	35.6	1928	50.1
1875	11.7	1895	19.9	1915	42.6	1929	52.1
1880	12.7	1900	25.5	1920	36.2	1930	52.1

Note: At noon on March 3, 1930 the San Francisco Water Department acquired title to the operative properties of the Spring Valley Water Company

Year	San Francisco	Sub-urban	Total System	Max. Day	Min. Day	Max. Month	Min. Month
1930-31	49.2	3.1	52.3	66.7	41.3	57.8	47.0
1931-32	49.3	2.8	52.1	65.6	39.6	59.4	47.5
1932-33	46.4	2.7	49.1	60.4	39.9	54.3	44.6
1933-34	47.3	2.6	49.9	64.3	39.1	53.7	45.1
1934-35	48.1	2.4	50.5	65.4	41.3	58.1	46.2
1935-36	52.3	2.5	54.8	68.0	43.0	62.1	50.3
1936-37	55.1	3.4	58.5	70.7	45.7	63.8	51.8
1937-38	53.3	5.0	58.3	72.4	46.7	65.4	53.4
1938-39	56.2	6.4	62.6	84.6	48.5	77.5	54.8
1939-40	59.6	9.0	68.6	89.5	51.6	76.6	60.9
1940-41	60.7	7.3	68.0	90.0	52.0	77.9	60.6
1941-42	63.5	7.7	71.2	94.5	53.1	85.7	61.7
1942-43	69.2	8.6	77.8	106.9	60.2	92.3	68.6
1943-44	76.1	11.4	87.5	109.9	70.4	101.1	76.8
1944-45	79.0	17.9	96.9	134.9	74.7	116.5	85.2
1945-46	83.7	17.2	100.9	131.9	72.9	115.3	88.0
1946-47	83.3	18.6	101.9	135.6	76.5	117.0	86.2
1947-48	81.3	19.7	101.0	138.3	74.2	122.6	88.0
1948-49	83.3	19.9	103.2	138.3	73.3	124.4	86.4
1949-50	83.1	19.6	102.7	139.1	73.8	120.7	88.0
1950-51	82.8	23.0	105.8	147.7	77.3	126.1	88.6
1951-52	82.9	26.2	109.1	154.0	77.6	130.8	92.1
1952-53	88.5	29.9	118.4	166.8	83.7	140.2	99.4
1953-54	89.7	35.2	124.9	197.0	88.0	157.3	107.2
1954-55	91.1	44.6	135.7	190.0	92.5	166.4	110.3

NOTE: Water Department deliveries for consumption in the major inhabited portion of the northerly 47 square miles of San Mateo County are included in the figures in column headed "San Francisco" and are not included in the figures in column headed "Surburban" in Table No.9.

TABLE NO. 10

AVERAGE DAILY CONSUMPTION BY DISTRICTS

GALLONS

District	1954-55	1953-54	Increase or Decrease	% Incr. or Decrease
Forest Hill	792,077	755,616	+ 36,461	+ 4.8
Stanford Heights	10,520,773	12,121,822	-1,601,049	-13.2
Sutro	1,595,973	None	+1,595,973	-
Sunset	37,154,384	35,306,912	+1,847,472	+ 5.2
College Hill	8,229,962	9,183,474	- 953,512	-10.4
University Mound	30,920,781	30,723,154	+ 197,627	+ 0.6
*Merced Manor	1,865,573	1,621,997	+ 243,576	+15.0
Total City	91,079,523	89,712,975	+1,366,548	+ 1.5
Suburban	44,597,677	35,233,348	+9,364,329	+26.6
Total Entire System	135,677,197	124,946,323	+10,730,874	+ 8.6

*Merced Manor consumption not measured directly. Any inaccuracies would reflect in suburban and College Hill consumption.

TABLE NO. 11

PEAK DAY CONSUMPTION BY DISTRICTS

GALLONS

District	1954-55	1953-54	1952-53
Forest Hill	1,335,000	1,327,000	1,281,000
Stanford Heights	14,306,000	15,673,000	15,034,000
Sutro	3,049,000	-	-
Sunset	47,969,000	50,560,000	46,625,000
College Hill	12,943,000	11,983,000	11,423,000
University Mound	39,527,000	41,916,000	42,196,000
Merced Manor	3,821,000	3,254,000	2,950,000
Total City	113,394,000	116,346,000	113,497,000
Suburban	83,705,000	80,647,000	53,682,000
Total System	190,004,000	196,993,000	166,770,000

TABLE NO. 12

METERS IN SERVICE - SAN FRANCISCO
AS OF JUNE 30, 1955

CLASS OF CONSUMER	5/8"	3/4"	1"	1½"	2"	3"	4"	6"	8"	12"	Total
REVENUE PRODUCING											
Commercial	20,533	988	2,110	2,295	3,670	9	41	272	291	1	30,210
Residential	120,316	422	1,053	288	24						122,103
Docks & Ships	140	9	33	48	101	2		1	3	2	339
Total	140,989	1,419	3,196	2,631	3,795	11	41	273	294	3	152,652
NON-REVENUE PRODUCING											
Commercial	1,114	16	27	19	27	1	3	6	1		1,214
Residential	822	2	4	1	2						831
Dock and Ship	3			1	10						14
Total	1,939	18	31	21	39	1	3	6	1		2,059
TOTAL METERS INSTALLED	142,928	1,437	3,227	2,652	3,834	12	44	279	295	3	154,711

Total Meters in Service as of June 30, 1955			154,711
Less: Extra Meters in 913 Batteries - (2,642 meters-913)		1,729	
Extra Meters in 35 consolidations (113 " - 35)		63	
Non-Revenue Meters (Temporarily shut off)		2,059	3,851
Number of Active Accounts as of June 30, 1955			150,860

NOTE: The above meter count includes 578 Automatic Sprinklers for fire purposes. At Dock and Shipping Office Portable meters used on hydrants as needed (not included in above) 10-1½"; 34-2" Lamberts. At Union Plant of Bethlehem Shipbuilding Corp., 11-1½" Lamberts.

PREVIOUS RECORDS:	1950-51	1951-52	1952-53	1953-54	1954-55
Total Meters	149,802	151,132	153,015	154,176	154,711
Increase	2,098	1,330	1,883	1,161	535
Idle Meters	1,920	2,166	2,169	2,301	2,059

TABLE NO. 13

METERS IN SERVICE - SUBURBAN DISTRICT

CLASS OF CONSUMERS	5/8"	3/4"	1"	1½"	2"	4"	6"	8"	10"	Totals
	REVENUE AND NON-REVENUE PRODUCING AS OF JUNE 30, 1955									
REVENUE PRODUCING										
Regular Rates	497	21	38	26	290	18	82	41	2	1,015
Airport Use	10	2	4	7	14			6	2	45
Total	507	23	42	33	304	18	82	47	4	1,060
NON-PRODUCING										
Under Regular Rates S/O	6									6
S.F. Intern'l Airport				1	4					5
Total	6				4					11

Total Meters in service as of June 30, 1955
Less: Meters in excess of accounts - 322
Non-Revenue Producing Meters - 11 — 333
Number of Active Suburban Accounts June 30, 1955 — 738

Note: The above includes 3 automatic sprinklers for fire purposes.

COMPARISON RECORD	5/8"	3/4"	1"	1½"	2"	4"	6"	8"	10"	Totals
Record June 30, 1952										
Revenue Producing	517	24	49	37	295	14	64	24	3	1,027
Non-Producing	19	1								20
Total	536	25	49	37	295	14	64	24	3	1,047
Record June 30, 1953										
Revenue Producing	523	20	50	34	308	16	71	31	2	1,055
Non-Producing	13	1	1	1	9					25
Total	536	21	51	35	317	16	71	31	2	1,080
Record June 30, 1954										
Revenue Producing	507	23	42	33	304	18	82	47	4	1,060
Non-Producing	6			1	4					11
Total	513	23	42	34	308	18	82	47	4	1,071

TABLE NO. 14
OFFICIAL METER TESTS

During Fiscal Year Ending June 30, 1955

PERCENTAGE OF VARIATION

Number Tested

	0%	.2%	.5%	1%	1.5%	2%	2.5%	3%	4%	5%	6%	Total	Ratio
Fast			1	1	1		1	1				5	45.5%
Slow			3	2								5	45.5%
O.K.	1											1	9.0%
Total	1		4	3	1		1	1				11	100.0%

PREVIOUS TOTALS

Year												
	1951	9			3		2	1		1		16
	1952	6		4	2	3	3		1	1	1	21
	1953	4		1	5	1	1					12
	1954	6	2	2	4	2	1	1	1			19

Refunds 1954-55 Account of over-registration - $2.86
Increases " " " " under-registration -0-

TABLE NO. 15

UNIT COST FOR METER MAINTENANCE

IN SAN FRANCISCO

Year	Meters in use	Total Cost	Cost per Meter	Labor Cost per Meter	Other Cost per Meter
1951-52	151,132	$107,952.22	0.71	0.323	0.391
1952-53	153,015	98,561.61	0.64	0.349	0.295
1953-54	154,176	163,556.72	1.06	0.394	0.667
1954-55	154,711	195,122.14	1.26	0.431	0.830

TABLE NO. 16

UNIT COST OF METER INSTALLATION

IN SAN FRANCISCO

	1951-52	1952-53	1953-54	1954-55
Meters Set	2,050	1,959	1,851	1,853
Percent 3/4" and smaller	77.6	78.9	77.0	79.1
Labor	$4.39	$6.01	$ 4.41	$ 4.37
Supervision	0.26	0.30	0.61	0.83
Meter	29.76	35.82	30.40	97.63
Material	5.88	9.55	4.66	6.75
Equipment	0.27	0.45	0.22	0.17
Paving	0.83	1.44	1.35	1.49
Miscellaneous	0.01	1.00	0.16	0.17
	$41.40	$54.57	$41.81	$111.41

TABLE NO. 17

UNIT COST OF SERVICE CONNECTIONS

IN SAN FRANCISCO

	1951-52	1952-53	1953-54	1954-55
Services installed	1,996	2,745	2,809	2,818
Percent 3/4" installed	77.8	77.4	70.2	64.3
Labor	$36.37	$29.94	$32.03	$16.46
Supervision	1.40	1.24	3.69	2.93
Material	13.31	14.04	15.14	7.51
Equipment	4.06	3.29	3.35	1.67
Paving	10.79	10.38	9.12	3.42
Miscellaneous	0.76	5.10	0.67	0.37
	$66.69	$63.99	$64.00	$32.36

STREET MAIN TAPS AND SERVICE CONNECTIONS RECORD

San Francisco District — June 30, 1955

TAPS ON STREET MAINS

	Wharf	3/4"	1"	1½"	2"	3"	4"	6"	8"	12"	16"	TOTALS
June 30, 1954	294	160,426	5,566	3,595	2,555	788	440	403	307	16	2	174,393
ADD 1954-55	1	266	743	126	48	15	20	11	14	-	-	1,243
June 30,1955	295	160,692	6,309	3,721	2,603	803	460	414	321	16	2	175,636

SERVICE CONNECTIONS

ADD	Services connected to street mains, as above	175,636
	"Distributors", being one or more add'l meter con. to service pipes . . .	14,708
	TOTAL connections of record	190,344
DEDUCT	Disconnected services	37,425
	Net metered live services consisting of 152,652 active meters; less 1,792 extra meters in batteries, plus 2,059 services tempy S/O . . .	152,919

Previous Records:	1951-52	1952-53	1953-54
Active	148,966	150,846	151,875
Shut-Off	2,166	2,169	2,301
TOTALS	151,132	153,015	154,176
Less extra battery meters	1,604	1,701	1,726
NET	149,528	151,314	152,450

SERVICE INSTALLATIONS

Fiscal Year 1954-55

DISTRICT	Taps	Distributors	Totals
Richmond District	58	34	92
Sunset "	404	105	509
No. Mkt. & West. Add.	157	41	198
So. Mkt. & Tw. Peaks	614	147	761
Waterfront	1	-	1
TOTALS	1,234	327	1,561

Previous Years	Taps	Distributors	Totals
1951-52	1,418	220	1,638
1952-53	1,380	271	1,651
1953-54	1,132	276	1,408

AUTOMATIC SPRINKLER INSTALLATIONS

Oct. 26, 1932 to June 30, 1955

SIZE	1932-52	1952-53	1953-54	1954-55	Total	Installed prior to 10/26/32	GRAND TOTAL
4-inch	25	3	4	2	34		
6-inch	142	9	18	12	181		
8-inch	190	14	7	11	222		
12-inch	8	1	0	0	9		
TOTALS	365	27	29	25	446	163	609

TABLE NO. 19

COMPARATIVE PUMPING COSTS

SAN ANDRES PUMP	1951-52	1952-53	1953-54	1954-55
Water Pumped, Gallons	9,317,043,000	13,979,387,000	12,742,790,000	12,998,928,000
Electric Power, KWH	9,536,000	14,022,400	12,876,800	13,180,800
Power Cost	$ 83,289.64	$ 113,537.06	$ 108,914.72	$ 112,689.18
Labor Cost	22,259.49	22,522.58	22,537.93	25,926.65
Miscellaneous	2,399.66	2,565.20	1,554.98	3,431.13
Totals	$ 107,948.79	$ 138,624.84	$ 133,017.63	$ 142,046.96
Cost per Million Gallons	11.59	9.92	10.44	10.93
" " " "per ft.of lift	0.0523	0.0450	0.0474	0.0495
CENTRAL PUMP				
Water Pumped, Gallons	4,040,430,000	4,285,260,000	4,388,500,000	4,419,000,000
Gas Burned, Cu.Ft.	170,964,000	191,048,000	193,304,000	191,657,000
Oil Burned, Gallons	8,430	None	None	3,027
Electric Power, KWH	31,200	153,600	141,600	169,200
Fuel & Power Cost	$ 55,325.34	$ 65,823.57	$ 67,418.97	$ 69,310.37
Labor Cost	62,039.80	60,395.22	68,296.27	72,283.84
Miscellaneous	463.00	1,075.08	159.02	490.84
Totals	$ 117,828.14	$ 127,293.87	$ 135,874.26	$ 142,085.05
Cost per Million Gallons	$ 29.16	$ 29.71	$ 30.96	$ 32.15
LAKE MERCED PUMP				
Water Pumped, Gallons				2,549,600,000
Electric Power, KWH				2,280,000
Power Cost				$ 25,200.98
Labor Cost				1,551.11
Miscellaneous				248.11
Totals				$ 27,200.20
Cost per Million Gallons				$ 10.59

TABLE NO. 20
RECORD OF BAD WATER COMPLAINTS

Comparisons of complaints received during Fiscal Years 1951-52 to 1954-55 with reference to the districts involved

	1951-52	1952-53	1953-54	1954-55
Sutro	-	-	-	17
University Mound	49	19	32	16
Sunset Reservoir	173	116	133	118
College Hill	27	28	29	25
Sunset Lombard	0	0	3	0
Forest Hill	7	4	2	0
Stanford Heights	73	57	40	19
Presidio Heights	23	7	1	0
Merced Manor	26	11	7	7
Totals	378	242	247	202

TABLE NO. 21
RECORD OF NO WATER COMPLAINTS
Fiscal Years 1951-52 to 1954-55

(a) Those for which the Department was responsible:

Choked Pipes	37	98	54	104
Serv. or main broken	34	34	30	35
Serv. or main too small	494	*	*	*
Elevation too high	3	*	*	*
S/O at main or meter	8	12	30	9
District temp'y S/D	0	3	33	6
Totals	576	147	147	154
Percentages	45.2%	32.4%	26.8%	17.1%

(b) Those for which the Consumers were responsible:

House Valves closed	61	56	73	71
House Pipe too small	304	*	*	*
False Reports	242	172	213	258
Valves out of Order	76	67	98	89
House Pipe Broken	9	8	17	19
Overloaded service	6	*	*	*
Noise	-	-	-	60
Miscellaneous	-	-	-	251
Totals	698	303	401	748
Percentage	54.8%	67.3%	73.2%	82.9%
Total "No Water"	1,274	450	548	902

Large Bill Complaints	9,265	8,859	9,286	8,407

*These complaints included in Poor Supply (Table No. 22)

TABLE NO. 22

COMPLAINTS - POOR SUPPLY

	1952-53	1953-54	1954-55
Meter Only:			
Too small	13	15	23
Service Only:			
Adequate	148	84	110
Inadequate	597	599	835
Meter and Service:			
Too small	122	165	289
Housepiping:			
Note: (Includes valve unless valve only is involved)			
Adequate	13	3	1
Inadequate	749	788	1088
Valves Only:			
Adequate	--	--	--
Inadequate	122	71	128
	909	918	1,257
% Inadequate			
Service	79.3	84.2	89.4
Housepipe	82.5	86.0	86.6

TABLE NO. 23

LENGTH OF VARIOUS SIZES OF TRANSMISSION MAINS IN FEET

	16"	22"	24"	28"	30"	33"	36"	37"	39"	42"	44"	48"	54"
Alameda	Sub 790	Sub 13,604					122,934				89,791		358
Crystal Springs No. 1					669					100			16,757
Crystal Springs No. 2													
San Andres #1 (Incl. College Hill)		2,990	170		36,490			1,410			28,890		
San Andres No. 2													63,344
Baden-Merced					31,890		2,260	1,560					
Pleasanton					27,432								
Niles-Irvington											15,600		
Bay Division No. 1										Sub 3,161			Sub 6,066
Bay Division No. 2										250			
Bay Division No. 3													
Calaveras											30,570	1,045	
Palo Alto							28,049						
Sunset Supply - Part											419		337
Pilarcitos Aqueduct				7,480		169	648				730		
Lake Merced Pumps Disch.							8,498						
Stone Dam Aqueduct					501				1,814		2,106	2,894	
Crystal Springs Aqueduct											30	916	492
Crosstown							12,130				13,765		
TOTAL	790	16,594	170	7,480	96,982	169	193,464	2,970	1,814	3,511	181,901	4,855	87,354

TABLE NO. 23(cont'd)

LENGTH OF VARIOUS SIZES OF TRANSMISSION MAINS IN FEET (Continued)

	57"	60"	61"	62"	66"	69"	72"	76"	78"	90"	Total Feet	Miles
Alameda											137,328	26.01
Crystal Springs #1											90,149	17.08
Crystal Springs #2		83,561							650		101,737	19.27
San Andres #1 (Incl. College Hill)											69,950	13.24
San Andres #2											63,344	12.00
Baden-Merced											35,710	6.76
Pleasanton											27,432	5.19
Niles-Irvington											15,600	2.95
Bay Division No. 1	6,821	102,131									112,113	21.23
Bay Division No. 2				26,094	78,856			3,867			115,133	21.81
Bay Division No. 3							127,103		43,184	917		
						Spls	5,725		Spls 1,908	*271	179,108	33.94
Alameda Cr. Siphon						2,942	93			2,972	6,007	1.14
Calaveras											31,615	5.99
Palo Alto											28,049	5.31
Sunset Supply-Part		64,323	18,739								83,818	15.87
Pilarcitos Aqueduct											9,027	1.71
Lake Merced Pump Discharge											8,498	1.61
Stone Dam Aqueduct											7,315	1.39
Crystal Springs Aq.					238		603				2,279	.43
Crosstown											25,895	4.90
TOTALS	6,821	250,015	18,739	26,094	79,094	2,942	133,524	3,867	45,742	4,160	1,150,107	217.83

* Tapers, Valves and Meters

TABLE NO. 24

PIPE RECORDS
CITY DISTRIBUTION SYSTEM

Wrought Iron and Steel Pipe

Size	Total Pipe in Ground July 1, 1954	Pipe Laid 1954-55	Removed or Abandoned 1954-55	Total Pipe in Ground June 30,1955
3/4"	12,073'	0'	0'	12,073'
1"	36,965	0	996	35,969
1¼"	3,928	0	0	3,928
1½"	168,750	0	7,000	161,750
2"	262,665	1,437	9,063	255,039
3"	27,392	0	0	27,392
4"	3,886	0	0	3,886
5"	804	0	0	804
6"	3,809	108	108	3,809
12"	6,555	0	0	6,555
13"	456	0	0	456
16"	25,587	0	0	25,587
20"	65,417	0	0	65,417
22"	25,309	0	0	25,309
23½"	9,087	0	0	9,087
24"	48,092	0	0	48,092
30"	40,594	2,286	0	42,880
33"	2,409	0	0	2,409
36"	56,864	0	0	56,864
37½"	8,896	0	0	8,896
44"	22,974	0	0	22,974
48"	11,504	0	0	11,504
60"	26,216	0	0	26,216
Total W.I.&S.	870,232'	3,831'	17,167'	856,896'
	Transite Pipe			
6"	17,305'	0'	0'	17,305'
8"	23,172	0	0	23,172
Total Transite	40,477'	0'	0'	40,477'

TABLE NO. 24 (Cont'd)

Cast Iron Pipe

Size	Total Pipe in Ground July 1, 1954	Pipe Laid 1954-55	Removed or Abandoned 1954-55	Total Pipe in Ground June 30, 1955
2"	24,886'	1,403'	0'	26,289'
3"	60,899	0	0	60,899
4"	497,535	3,853	1,255	500,133
6"	1,765,309	8,280	554	1,773,035
8"	1,548,534	7,925	2,000	1,554,459
10"	6,100	0	0	6,100
12"	498,835	8,122	0	506,957
16"	302,370	8,888	0	311,258
20"	22,642	0	0	22,642
22"	19,058	0	0	19,058
24"	52,173	0	0	52,173
30"	5,297	0	0	5,297
Total C.I.	4,803,638'	38,471'	3,809'	4,838,300'
Total All	5,714,347'	42,302'	20,976'	5,735,673'
Miles	1,082.262	8.012	3.972	1,086.302

TABLE NO. 25

VALVE RECORDS
CITY DISTRIBUTION SYSTEM

Gates		Service Gates		Blowoffs		Air Valves		Check Valves	
2"	136	3"	466	3/4"	9	3/4"	61	1½"	7
3"	246	4"	506	1"	43	1"	107	2"	10
4"	1268	6"	334	1½"	276	1½"	433	3"	1
6"	4044	8"	275	2"	886	2"	276	4"	9
8"	3809	12"	12	3"	208	3"	5	6"	28
10"	6			4"	452	4"	0	8"	29
12"	868			6"	196	6"	13	12"	3
16"	458			8"	124	8"	282	16"	3
20"	23			12"	20				
22"	20			16"	3				
24"	63								
30"	23								
36"	20								
37½"	2								
42"	3								
48"	1								
Totals	10990		1593		2217		1177		90

Stop Cocks	
5/8"	18
3/4"	141
1"	200
1½"	977
2"	2720
Total	4056

TABLE NO. 26
CONTRACT DATA 1954-55

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-55	Bid Price	Contract Cost to 6-30-55
539R	Construction of Caretaker's Cottage Crystal Springs Dam	Peninsula	5	J.Q.Adams Co.	9/2/54	1/24/55	100	$ 15,284.00	$ 15,129.40
660	Construction of Summit Pump Station	CDD	8	C.J.Collins Co.	5/3/54	9/22/54	100	31,154.00	33,159.76
664	Construction of Summit Reservoir	CDD	6	Monson Bros.	9/21/53	4/29/55	100	576,697.00	525,424.77
666	Replacement of Crystal Springs 44" Pipeline, Crystal Springs Dam to Hillsborough Bridge	Peninsula	8	McGuire & Hester	3/15/54	12/28/54	100	571,144.00	561,812.20
668	30" Steel Mains in 20th Ave., Kirkham St. to Golden Gate Pk	CDD	7	M & K Corp.	3/29/54	7/22/54	100	61,462.50	54,965.69
671	Replacement of Timber Cradles on the 44" Niles-Irvington Pipeline	Alameda	10	Chas. S. Moore	6/14/54	9/10/54	100	18,870.00	18,628.53
672	Bypass Guadalupe Trestle	Peninsula	4	M & K Corp.	4/11/55	--	24	398,387.48	94,500.00
673	Protective Levee at West End of Bay Crossing Pipe Line Bridge	Peninsula	1	Associated Dredging Co.	6/1/54	---	81	15,937.00	12,827.00
680	Sunset Supply Line-San Andreas Branch	Peninsula	8	McGuire & Hester	2/21/55	---	49	313,310.00	152,730.00
682	4",6" & 8" CIM in Putman, Jarboe to Thompkins & in Freeway Access Rd., Vermont to Kansas	CDD	4	F.T.Fairey	5/24/54	7/15/54	100	7,420.70	6,889.24
683	4",6" & 8" CIM in Potrero Annex Housing Project	CDD	5	F.T.Fairey	6/14/54	7/29/54	100	$ 13 102.10	$ 11,924.69
684	S.F.College for Women Pump Station	CDD	4	Associated Pipe Line, Inc.	4/18/55	6/29/55	100	13,525.99	12,189.45
685	Alterations 1st, 2nd & 3rd floors, 425 Mason St.	General	7	Wm. McIntosh & Son	6/1/54	8/31/54	100	5,851.00	7,669.19
686	Exploratory Drilling for Proposed Tunnel-Hillsborough Section of Crystal Springs & Sunset Supply Pipelines	Peninsula	3	Processed Diamond Bit & Tool Co.	7/6/54	10/27/54	100	6,005.00	5,992.20
687	Repaving of Street or Sidewalk Openings, 1954-55	CDD	1	Pacific Pavements Co.	6/7/54	6/30/55	100	145,775.00	101,684.79

TABLE NO. 26 (Continued)
CONTRACT DATA 1954-55

No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-55	Bid Price	Contract Cost to 6-30-55
688	Electrical Alterations. 425 Mason St.	General	4	Roth Electricians	9/13/54	11/30/54	100	4,395.00	4,395.00
689	Lighting of 1st Floor 425 Mason St.	General	6	Scott Buttner Electric Co.	9/20/54	11/11/54	100	6 179.00	6,179.00
690	Painting of 1st & 2nd Floors 425 Mason St.	General	6	New Method Painting & Decorating Co.	6/14/54	12/10/54	100	2,975.00	2,975.00
691	4",6",8" & 12" CIM in 7th Ave., Arguello Blvd. & in DeMontfort (Sutro Project)	CDD	5	F.T.Fairey	10/4/54	12/10/54	100	20,929.60	19,793.8[illegible]
692	16" CIM in Moraga St. & in Quintara St. from 28th to 34th Aves.	CDD	8	Associated Pipe Line Inc.	8/23/54	10/15/54	100	$ 53,114.25	$ 51,121.87
693	12" CIM in 18th Ave., Between Fulton and California Sts.	CDD	4	Lowrie Paving Co.	10/4/54	2/2/55	100	41,779.15	38,826.07
694	16" CIM - 26th & Shotwell to 23rd & Vermont Sts.	CDD	3	F.T.Fairey	2/28/55	5/23/55	100	73,445.00	71,765.36
695	8" CIM in Jerrold Ave. between Phelps and Quint Sts.	CDD	7	Associated Pipeline, Inc.	8/23/54	10/5/54	100	4,763.75	4,719.31
697	6" & 8" CIM in Flint & 16th Sts. & in Quintara bet. 24th & 25th Aves.	CDD	3	F.T.Fairey	8/30/54	12/21/54	100	5,442.35	4,971.35
698	Gathering and delivering of the 1954 Walnut Crop	Alameda	2	John Helzer	8/30/54	11/24/54	100	7,880.00	7,320.43
699	Repairs to Wood Roof Crystal Springs Aqueduct	Peninsula	4	C.J.Collins	9/20/54	11/12/54	100	5,262.50	4,557.54
700	Repairs to Windows,425 Mason	General	3	Roy Madsen	9/20/54	12/10/54	100	10,814.00	10,814.00
701	8" CIM in Apparel Way East of Barneveld Ave.	CDD	3	F.T.Fairey	10/11/54	11/19/54	100	4,707.80	3,142.41
702	Alterations on 4th Floor 425 Mason St.	General	5	Antone Petersen & Sons	10/25/54	1/5/55	100	5,590.00	5,590.00
703	4",6",8" & 12" CIM in Cambridge St.,Felton to Wayland & in Bacon St.,Cambridge to Harvard	CDD	4	Associated Pipeline,Inc.	11/8/54	12/27/54	100	$ 14,446.10	$ 13,142.95

TABLE NO. 26 (Continued)
CONTRACT DATA 1954-55

No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-55	Bid Price	Contract* Cost to 6-30-55
705	Reconditioning Calaveras Pipeline	Alameda	2	Pipe Linings, Inc.	2/28/55	6/28/55	100	144,668.00	152,386.60
706	4" & 8" CIM in Alemany Housing Project	CDD	6	E.J.Treacy	11/22/54	----	0	8,151.50	0
707	San Andreas Outlet No. 1 and Crystal Springs Fluoride Treatment Plants	Peninsula	7	C.J.Collins	2/7/55	----	93	33,081.60	30,600.85
708	Reconditioning a portion of 30" Steel Pipe Line,Santa Clara Ave. & Portola Dr. to Fairfield Way & Ocean Ave.	CDD	1	Pipe Linings, Inc.	1/3/55	2/28/55	100	23,514.00	22,547.54
709	12" CIM in Clayton St. & Parnassus Ave., Ashbury to Stanyan St.	CDD	6	Michael Murphy,Jr.	1/3/55	4/6/55	100	21,090.40	19,254.14
710	6" & 8" CIM in Griffith St. & Fitzgerald Ave. & in Harvard-Bacon to Burrows	CDD	5	F.T.Fairey	2/21/55	----	0	4,846.85	0
711	6" & 8" CIM in Leland Ave., Delta to Bayshore	CDD	4	S.F.W.D.	4/27/55	----	98	16,858.40	16,521.23
712	6",8",12" & 16" CIM in Portions of Midtown Terrace Sub. #3 & #4	CDD	6	F.T.Fairey	3/14/55	----	95	$ 46,761.15	$ 44,423.10
713	12" CIM in Oxford & Felton Sts. bet. Silver Ave. & Cambridge St.	CDD	4	Michael Murphy, Jr.	5/16/55	----	72	16,331.00	11,758.32
714	6" CIM in Chestnut St. bet. Fillmore & Laguna Sts.	CDD	6	H.T.Treacy	3/7/55	----	0	7,349.50	0
715	8" CIM in Ingalls St., Fitzgerald to Egbert Aves. & in Schwerin St. south of Sunnydale	CDD	3	Michael Murphy,Jr.	5/9/55	----	85	10,535,05	8,954.79
721	6" & 8" CIM in Oakdale, Quint to Phelps Sts., & in Missouri-Sierra to 22nd Sts.	CDD	3	Michael Murphy, Jr.	5/9/55	----	0	6,412.70	0
722	4" & 6" CIM in Wildwood Way and Homewood Court	CDD	4	S.F.W.D.	5/31/55	6/22/55	100	4,562.60	2,889.51
724	6" & 8" CIM in 25th St., Iowa to Tennessee & in Stanley & Bright Sts.	CDD	4	Michael Murphy, Jr.	6/13/55	----	0	8,693.90	0
725	6" CIM in 43rd Ave., bet. Judah & Lawton Sts.	CDD	4	Associated Pipeline, Inc.	6/13/55	----	0	11,263.10	0

*Contract cost includes cost of materials and equipment furnished by the City.

ORGANIZATION AND PERSONNEL

G. W. Pracy . . . . . General Manager and Chief Engineer
G. D. Burr . . . . Assistant General Manager and Chief Engineer

WATER PRODUCTION AND ENGINEERING

H. C. Medbery . . . . . Senior Engineer in Charge of Engineering and Water Production
C. A. Lauenstein . Construction Engineer - Special Construction
W. A. Yount . . . . . Superintendent Alameda Division
R. L. Borome . . . . .Assistant Superintendent Alameda Division
G. J. Davis . . . . . .Superintendent Peninsula Division
J. E. O'Marie . . . .Assistant Superintendent Peninsula Division
G. E. Fanning . . . . . Photographer

CITY DISTRIBUTION

O. G. Goldman . . . . . Superintendent City Distribution
S. M. Tatarian . . . Assistant Superintendent City Distribution
A. G. Zecher . . . . . General Foreman City Pipe System
J. P. Curto . . . . . .General Foreman Services and Meters
M. C. Simon*. . . . . Head Clerk
R. W. Tullis . . . . . Superintendent of Machine Shop
P. L. Sebanc . . . . . Foreman Meter Shop

WATER PURIFICATION

H. W. Tracy . . . . . .Acting Engineer of Water Purification
H. L. Fruitman. . . . . Senior Water Chemist

WATER SALES

J. J. Lyons . . . . . .Manager, Water Sales Division
J. W. Cooper . . . . .Assistant Manager, Water Sales Division
J. J. Hennessy. . . . . .Chief Clerk Collections
K. R. Fahy. . . . . .Chief Clerk Consumers' Accounts
E. R. Benninger . . . . . .Head Clerk Water Sales Division
C. C. Clark . . . . . .Claims Representative
E. L. Jimenez*. . . . . .Assistant Claims Representative
F. Lennon . . . . . .Head Clerk Adjusting Division
T. S. Szeghy . . . . . Head Clerk Consumers' Accounts
C. P. Hynes . . . . . .Head Clerk Service and Supply
F. B. Peterson . . . . . Head Clerk Closing Bills
J. P. Manning . . . . . .Head Clerk Docks and Shipping
A. J. Ute . . . . . .Chief Water Service Inspector

LANDS AND AGRICULTURE

J. G. Brucato . . . . . Superintendent Agricultural Division
F. Steiner . . . Assistant Superintendent Agricultural Division

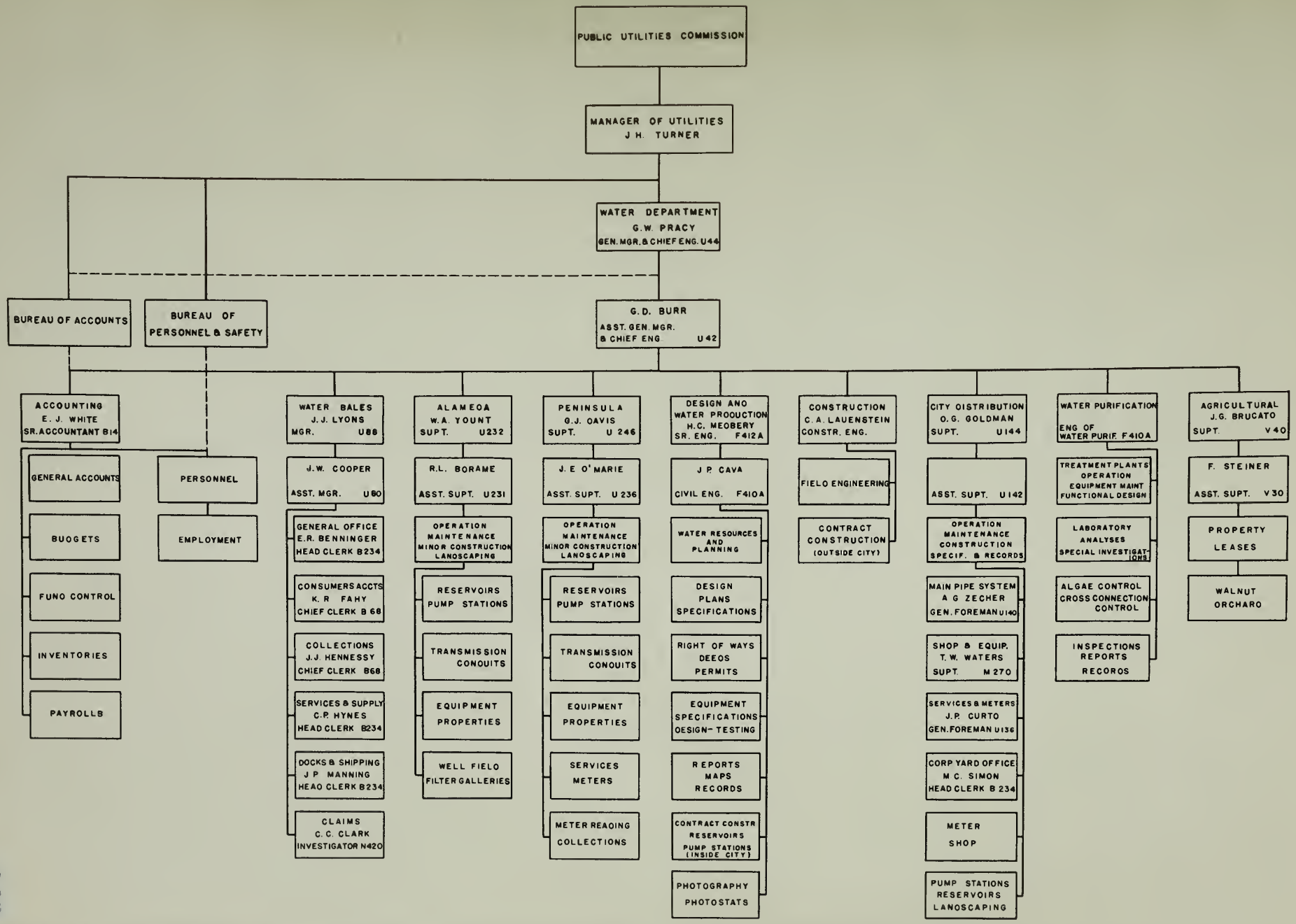
ACCOUNTS

E. J. White . . . . . Senior Accountant
Z. H. Taylor . . . . . Accountant

* E. L. Jimenez appointed January 17, 1955 vice M. C. Simon transferred to City Distribution vice A. C. Doidge retired January 1, 1954.

WATER DEPARTMENT ORGANIZATION CHART

PUBLIC UTILITIES COMMISSION — CITY & COUNTY OF SAN FRANCISCO

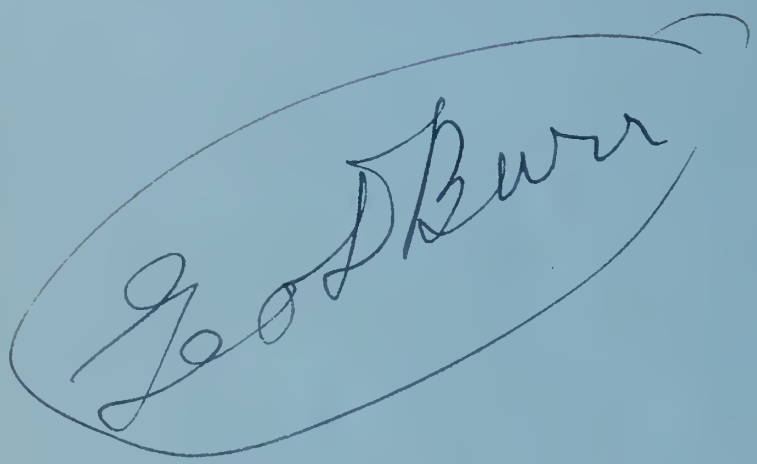


RETIRED 1954-55

During the past fiscal year, the following employees were retired from service, and recognition is given to their faithful service in the organization:

Employee	Classification	Years' Service
Harry E. Algier	Auto Machinist	23
Wyndam O. Barnes	Meter Reader	25
Nicholas Belkin	Assistant Engineer	11
Elmer Burke	Gateman	25
John O. Dempsey	Lineman	25
Alvin C. Doidge	Head Clerk	25
Evelyn Handy	Bookkeeping Machine Operator	12
David LaFourgette	Clerk-Typist	24
Daniel O'Connor	Shut-Off Man	25
George Sobiela (At Pleasanton)	Junior Operating Engineer	14
Roy Tullis	Superintendent-Machine Shop	25

IN MEMORIAM

Luis DeOjeda	July 6, 1954	3
Guilo Santini	July 29, 1954	2

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